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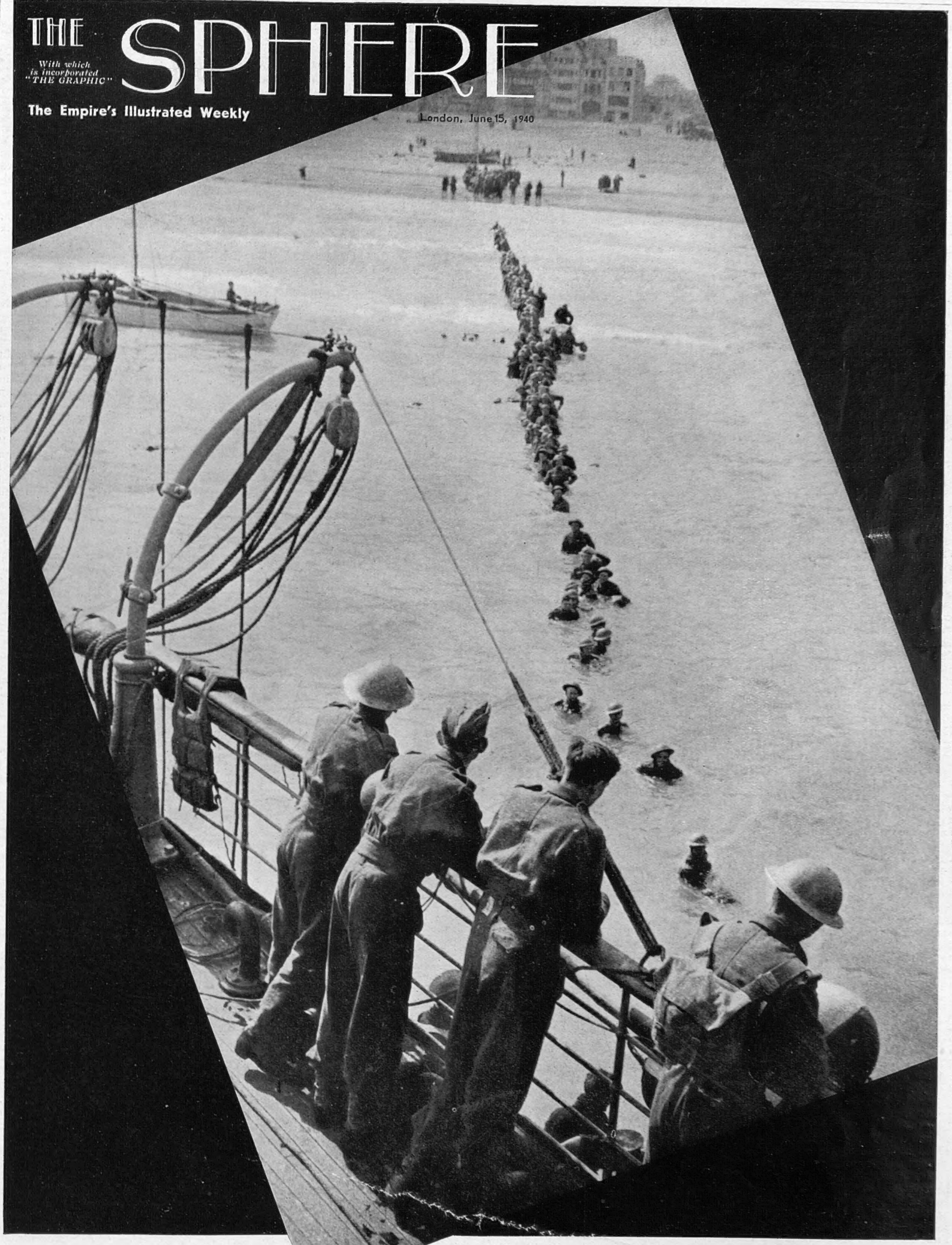
The Empire's Illustrated Weekly

London, June 15, 1940



THE SAVING OF THE B.E.F.

British Soldiers Wading Out to the Transports at Dunkirk

As far as is possible, in last week's issue of "The Sphere" and on the succeeding pages of this issue, we give the story of the glorious retreat of the B.E.F. and Allied forces; and of their transport to this country to re-form and re-equip for further service against the enemy. It is a great pity that the story cannot be more fully documented; but when men are fighting for their very lives, and for the fate of our mighty Empire, photography and "war correspondence" assume a very small importance! Nevertheless, from the pictures reproduced here, and in last week's issue, readers can form a pretty vivid idea of the conditions under which the greatest fighting retreat in history was carried out. Streaming on to the flat beaches of the Flanders coast, after a 90-mile march before the onrush of a mechanised monster, British and French—335,490 of them—endured the ceaseless bombardment and bombing for days, until each individual's turn came for evacuation. The picture above was taken from the deck of one of the ships engaged on this task: it shows the human chain of soldiers reaching from the shore to the ship. Men were up to their necks in water, but many still managed to retain their precious rifles

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A WAR NEWSLETTER — No. XLI

32–34, ST. BRIDE STREET, E.C.4

"RECULER POUR MIEUX SAUTER"— Mr. Churchill was wisely restrained. He did not minimise our tremendous losses in material. He did not suggest that we could in a week or so put back into France a quarter million men equipped with mechanised vehicles and guns, as they were equipped when they advanced into Belgium. But by the end of July we have no doubt that the bulk of that seasoned army will be in France again, grandly furnished once more, and meanwhile the balance of our B.E.F., well-equipped, is now fighting in France and will every week be reinforced with men, guns and tanks in their section on the Somme. Our huge loss in material does not minimise our smashing triumph in the air and on the sea, nor does it lessen the miracle of courage and discipline which saved our 300,000 "lost" soldiers. We know where we stand, now that the epic of Dunkirk is a part of history. For weeks to come we are impregnable against invasion (but liable to ever increasing bombing) and when the B.E.F. is overseas again, we shall have a force organised to replace them at home.

THE MEN WHO CAME BACK.—Bit by bit we hear the details of their glorious saga from the men who came back from that heroic "Corunna." The miracle came about. One third of a million seasoned troops came back from destruction. We know now that, thanks to their heroism and the unsurpassed courage and devotion of our seamen and airmen, we have brought back to England a great first line army, trained and experienced in modern war, that is the equal of any in Europe and capable now of indefinite expansion. Meanwhile, invasion of our shores cannot hope for even temporary success. It is the greatest victory ever snatched from the jaws of a temporary reverse. And Hitler knows it in his heart. Command of the sea is still three parts of the battle. We cannot lose it or victory. We heard of the marches of our men through the same towns and hamlets of Flanders and of the Pas de Calais which we knew as smiling villages, as heaps of ruins, as new towns, and which are now ruins again. We heard again of Cassel, Poperinghe, Samer, Desvres; in those villages we ourselves fought and trained and were billeted. We recalled the faces of the old inhabitants who became our friends, we could see again our horse-lines and our gun parks and smell the same smells of farmyard and barn. Never before have heroic men returned to tell their tales of glory to an audience so well equipped to comprehend the full implications of it.

PARIS, LONDON OR BOTH?—Whither next, Hitler? You cannot pause; you carry the Flying Dutchman's curse. You must go on adding to your little bill in German lives, German machines, petrol and raw material. You are lost anyhow. If you hesitate, you are lost the sooner. You have trained our army for us, you have trained the French army, and you have added scores of millions to your food queues and lost a quarter of your trained pilots, mechanised force, half your reserves of petrol, all that remained to you of the respect of the wobbler-neutrals, and 500,000 of your best soldiers—not to add half your fleet and three-quarters of your trained submarine crews. Never did victory leave the "defeated" in higher heart, greater confidence, finer morale and with more tested experience. You have done more. You have steeled two nations. Whither now? To Paris first or to Paris and London simultaneously? You seem to have chosen to make sure of Paris first. If you succeed, the war is still to be won.

A DICTATOR'S DOUBTS.—The oldest rule in warfare is this:—When you have totted up your own losses and difficulties, set them off against an estimate of your enemy's. Even if he be temporarily "on top," the balance in your disfavour will be remarkably small. At this hour, Hitler's difficulties are far greater than the Allies, his chance of ultimate victory is infinitely more remote. His attack was launched when his economic provisions were chaotic. His reserves of essential supplies are vanishing and he is every week more taxed to replace them. His rolling stock, which was disastrously inadequate in peace-time, is now unable to cope with the hundred new demands made on it. The Rühr war-industry area has been heavily hit by our bombers. His petrol reserves go up in smoke and those that survive are already half depleted. His transport system, in addition to the demands on it for carrying troops, petrol, essential raw commodities and military stores, must cope in the reverse direction with at least a quarter of a million casualties. He has divided his war losses by four, but the mothers and wives of Germany have learned at last the value of Goebbelsism, and Nazi lies are magnifying the faked figures of casualties by more than four times. The Allies have learned their bitter lesson and resistance to the new warfare has stiffened. Our immense resources have greatly increased their outputs. The veil that hid the truth about the Nazi system is rent and nothing can save Hitler but the collapse of France and Britain before September.

THE RETURN OF THE LITTLE SHIPS: On Sunday last, Londoners on the Thames Embankment saw convoy after convoy of the small vessels which took part in the epic evacuation of the B.E.F. and French troops from Dunkirk, being towed up the river. Two-seater motor boats and small river yachts, slender and frail, returned after days of bombing and bombardment while they brought back the men from Flanders. Now, in quieter and more familiar waters, they are to undergo minor repairs at an up-river base

"TU L'A VOULU."—Now that Italy has plunged into the war it lies solely at the door of one man. Mussolini, another dictator who has succumbed to the dictator's disease of megalomania, has undone at a word all the good he has done for his country. There was no cause for war. His people did not want it, there was no difficulty with Italy's ancient allies which could not have been adjusted by goodwill and negotiation. France and Britain are not primitive races. They are better equipped than Abyssinia and Albania. The Australians, Turks, and so on are ugly customers for Italian infantry to meet. The British and French fleets know something of modern sea warfare, and air warfare. The gamble is for the Nazi plums promised. The odds are heavy. Extinction of Dictator and Italian Empire very swiftly or one day such crumbs as may fall from the Nazi table, if that table be standing. Here is tragic lunacy!

THE FLOWERS OF THE FOREST.—To one more imbecility of war we are now steeling our hearts. The casualty lists are a daily portion of our news. They are grievous enough; the miracle of British heroism and tenacity and discipline have cut them down to the minimum, a minimum quite recently beyond our hopes. Yet not a day passes when most of us do not read of the death of a promising man well known to us, young or in the prime of life. It must be always so in war. Those best qualified to lead in war and peace in their own spheres are the first to go and the first to die, and the death of each of them leaves in the life of the nation a gap which it will be hard to fill in the aftermath of reconstruction. How different might have been the last twenty years if the missing generation of 1914–18 had played its part in the last effort to rebuild. One can speak generally of the gap daily made in the nation's life. Of the gaps in the lives of individual families, the more we think the less can we find words to speak or write. All through Britain and the Empire the connection is made, the sympathy radiates like electric waves, but we cannot choose the words to speak or signal the message to our friends.

B.E.F.

Their hearts unproven
And their arms untried,
They waited wondering
For war's dread tide.

Through the deep winter,
Biting as the flail,
They stood there pondering
Would courage fail?

Now from the burning,
From fields where they fought,
Each comes home bearing
The proof that he sought.

R. C. EDMONDS

(Formerly on the editorial staff of THE SPHERE, *now with the British Expeditionary Force.)*

LOVE OF TITLES (MILITARY.)—Except "Captain Coe," the racing tipster, I fancy I was the only officer who both began and ended the late war 1914–18 as a Captain. As soon as it was over, I tried to drop my exalted military rank in the Territorial Force (it took some time with my tradesmen and the club servants) and became "plain Mister." When the L.D.V. sprang up in May, 1940, I was instantly promoted Captain in the neighbourhood. When I was given a minor command (in that body in which we are all "full privates" unpaid) I leapt to Major in the opinion and on the lips of my neighbours. But this was not enough. When my old uniform was shaken free of moth and I appeared in it on my patrol rounds, I was promoted Colonel by my men. Yesterday, when I visited one of my section leaders, I had the glorious happiness of hearing one of his assistant masters telling him: "General ——— is in your study." Is there perhaps a Marshal's baton in my knapsack?

THOMAS HARDY AND DYNASTS.—We have been celebrating Thomas Hardy's centenary of birth. It is not difficult to find apt quotations from that great epic for the present hour. For the drama deals with dictators and the end of all dictators is the same. As King George V wrote of the Kaiser in November, 1918. "No man can dominate the world. It has been tried before and always fails." When Waterloo had settled the issue for Napoleon, Hardy put these words into the mouths of his characters:—SPIRIT OF THE YEARS: ". . . Thy full meridian-shine was in the glory of the Dresden days, when well-nigh every monarch throned in Europe bent at thy footstool." NAPOLEON: ". . . Saving always England's—she whose tough, enisled, self-centred, kindless craft has tracked me, springed me, thumbed me by the throat, and made herself the means of mangling me." SPIRIT OF THE YEARS: ". . . Gone thy opportunity. Such men as thou, who wade across the world to make an epoch, bless, confuse, appal, are in the elemental ages' chart like meanest insects on obscurest leaves, but incidents and grooves of earth's unfolding." What was true of Napoleon is no less certainly true even now of Hitler.

CIVILIANS AND WAR.—England is still behind continental countries in comprehending what "total war" means to civilians. There are still queues of cars burning petrol at week-ends taking people to the seaside for bathing parties. God knows all workers need all the recreation they can snatch—but that recreation needs to be localised and rationed in the best interests of the nation. If the Government smiles still on various forms of racing, we must presume it considers racing a legitimate and necessary recreation. Meanwhile, a citizen's duty in war-time is to co-operate with the police in certain clear duties. These are to prevent and allay panic; to kill rumour, to report clear instances of Quislingism to the local leader of L.D.V., to report cases of unattended cars to police or L.D.V. If the citizen be in uniform (in L.D.V.) he has larger powers. He is not to become a busybody and hold up the Royal Mail on its lawful occasions, but it is everyone's duty to keep calm, to ensure calmness, to keep alert and to report his proved suspicions instantly.

THE OLD STAGER

CUT OFF ON THE SOMME

The Story of a Gallant British Infantry Regiment and Their Adventures

AFTER THEIR RETREAT HAD BEEN CUT OFF—SHIFTING TO A NEW POSITION BEHIND THE ENEMY'S ADVANCE LINE: THE REGIMENT MOVING ABOUT THE COUNTRY IN LORRIES AND WITH ALL THEIR EQUIPMENT INTACT

IN HOSTILE TERRITORY—A HALT BY THE WAYSIDE WHILST SCOUTS ARE SENT OUT TO GATHER NEWS OF THE ENEMY'S WHEREABOUTS

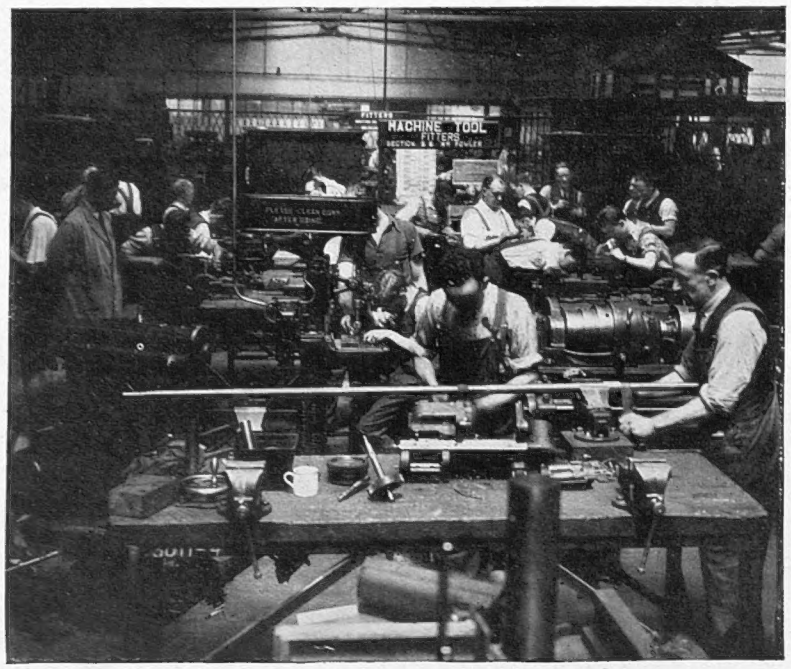
SURROUNDED BY THE ENEMY: THE REGIMENT TAKES UP A DEFENSIVE POSITION BY THE ROADSIDE READY TO REPEL AN ATTACK AND PREPARED TO FIGHT TO A FINISH

WITH CAMOUFLAGED LORRIES AND MOTOR CYCLES IN THE HEDGE THE MEN—WORN OUT BY THEIR WANDERINGS—REST IN CONCEALMENT BENEATH THE TREES BORDERING THE ROAD

THE FIRST PICTURE FROM THE SOMME FRONT: A CONFERENCE AT A HASTILY INSTALLED BRITISH FIELD-HEADQUARTERS. AS THE REPORTS COME IN FROM THE FIGHTING LINE, POSITIONS ARE HURRIEDLY PLOTTED ON THE LARGE-SCALE MAPS

A BRITISH LORRY CRASHES THROUGH A BARRICADED ROAD ON ITS WAY TO ULTIMATE FREEDOM

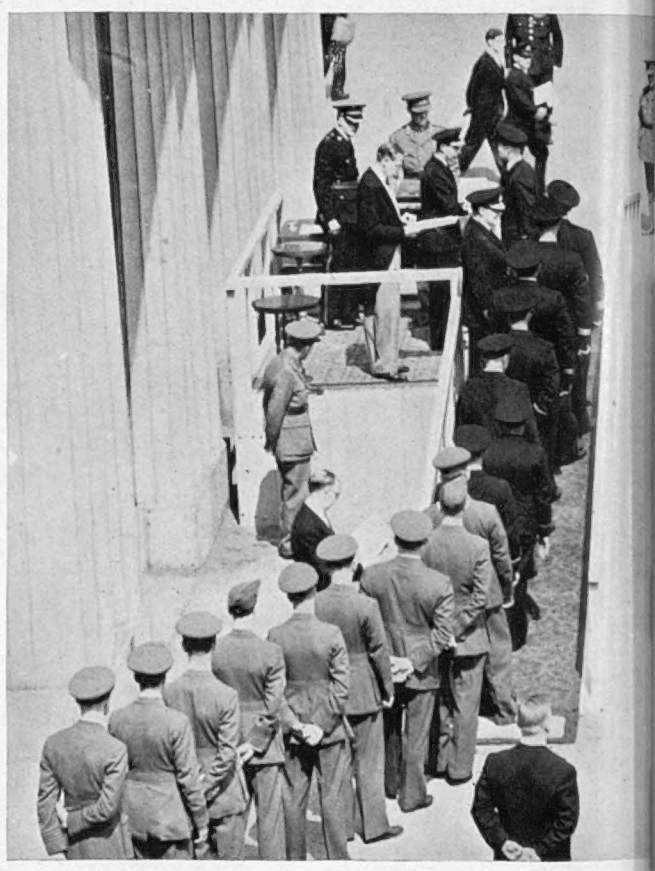
The pictures reproduced on this page give an excellent idea of the "open" nature of the fighting on the Somme just before the present colossal drive by the enemy. This British infantry regiment held the whole of a large sector of the Somme during a vital stage in the German advance. They were cut off from the main body of the B.E.F.; but immediately commandeered vehicles and turned themselves into a motorised unit. For five days thereafter they went for the enemy continuously wherever they could find him behind his own wildly fluctuating advance line. Once they were suddenly surrounded by the enemy and compelled to take up a hurried defensive position—but ultimately they were able to join up once again with the main Allied forces, and are now back in the British line



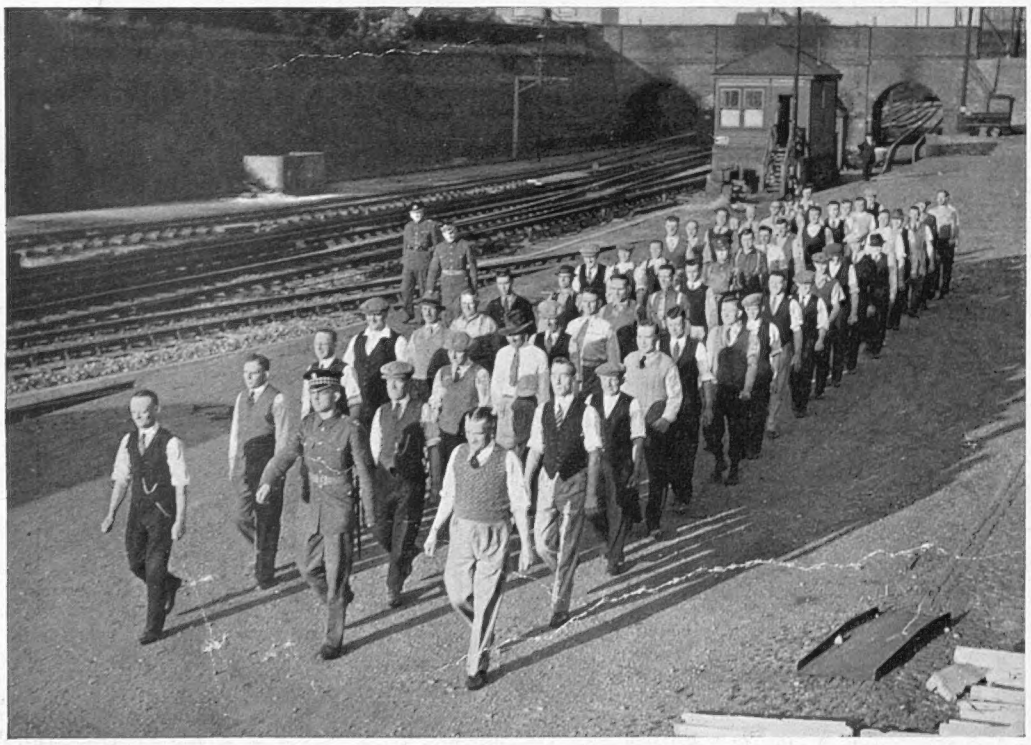
BRITAIN'S FACTORIES AT FULL BLAST 24 HOURS EACH DAY: One of the workshops of the twenty-two Government training centres which the Ministry of Labour has now thrown open to men employed in non-reserved occupations but who will now be taught engineering

WORKING HARD FOR VICTORY: Another view taken at a Government training centre. When this scheme was inaugurated some months ago the centres were prepared to deal with 40,000 trainees a year. Now they will be tuned up to handle 100,000 men annually who will help in the great arms speed-up

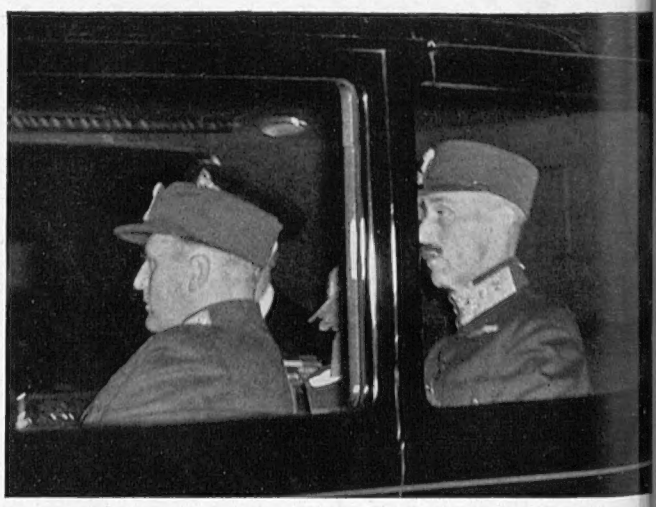
A RAIDER BROUGHT LOW: The wreckage of a German bomber which crashed into the grounds of a rectory in a Suffolk village on the night of June 7, during which air-raid warnings were sounded in eleven counties. Another enemy raider on the south-east coast machine-gunned a town. Altogether very little damage was done despite the intensity of the attacks. Most of the bombs fell on open country miles away from human habitation



THE KING DECORATES HIS MEN: Standing on a raised dais in the courtyard of Buckingham Palace, the King has just held the first open-air investiture of the war, when he decorated a number of men. His Majesty is wearing naval uniform



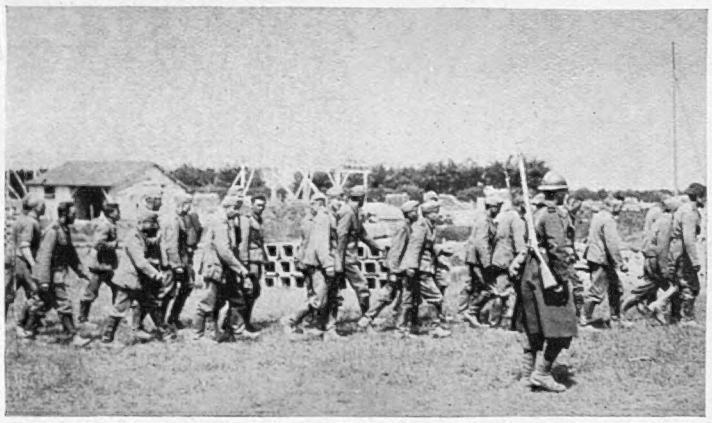
PREPARING THE HOME DEFENCE OF BRITAIN: Many of the staffs of British railways are spending all their spare time training to become members of the "Parashot Squads," and at suburban stations employees are now hard at work drilling. Parachutists if they landed would make for important railway points, and it is essential that fully-trained men are ready to deal with them



NORWAY'S RULER ARRIVES IN LONDON: King Haakon of Norway (right) and Crown Prince Olaf (left) driving from the station to Buckingham Palace on arrival in London on the evening of June 10. King George drove to the station to welcome them

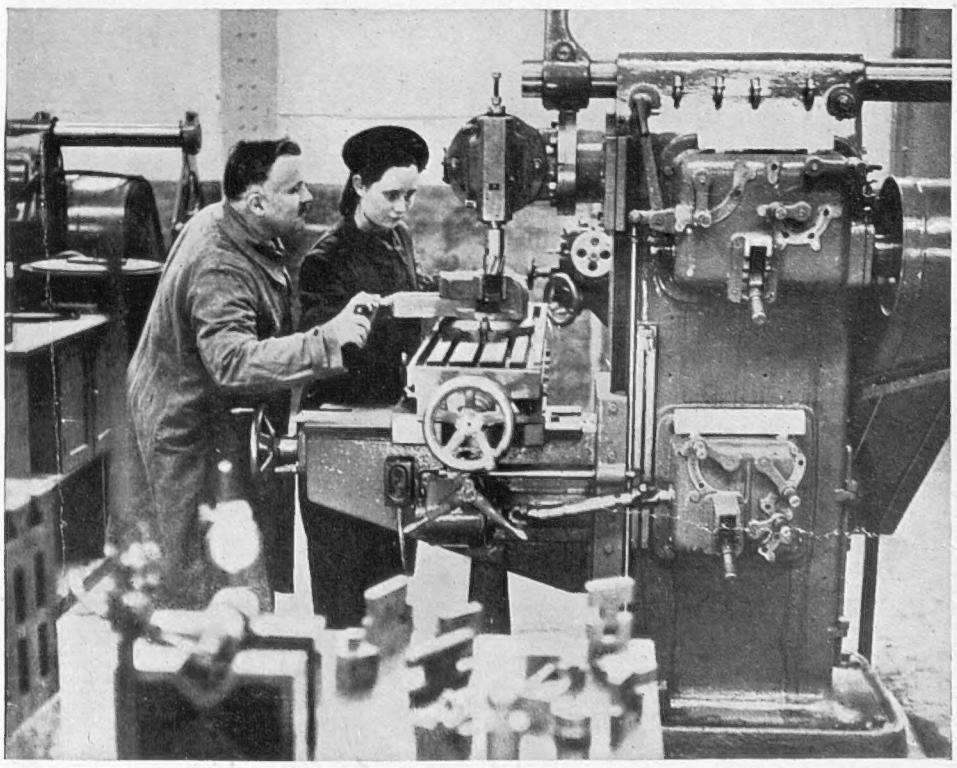
FRANCE

FRANCE'S RESOLUTE WAR-TIME CABINET: M. Paul Reynaud, President of the Council, Minister for War and Foreign Affairs, seen after presenting members of his newly-formed Cabinet to the President of the Republic. From left to right: M. Frossard, Minister of Public Works; M. Chichery, Minister of Commerce; in profile can be seen the new Minister of Information, M. Prouvost, who owns the newspaper *Paris-Soir*; M. Paul Reynaud; behind him M. Fevrier, Under-Secretary of State; M. Delbos, Minister of Education; General de Gaulle, Under-Secretary of State for National Defence; and M. Pernot, Minister for French Home Life and Health



HUMAN SPOILS OF WAR: A poilu marches alongside a long line of German prisoners in a camp behind the French lines. The Germans are amazed at the humane treatment they receive when captured

THE WONDERFUL POILU OF FRANCE GOES UP TO MEET THE ENEMY: French infantry taking up their places in the Weygand deep defence line. These are the men who are at this moment fighting desperately to stem the German pressure on the Western Front



FRANCE'S SUPREME WAR EFFORT ALSO EXTENDS TO HER WOMENFOLK: Young French girls who, in peace-time, worked in Parisian fashion houses, are now aiding France's war-time effort by learning, as apprentices, how to operate mechanical drills. Many girls whose pre-war occupations were typically feminine are now engaged in hard manual work to aid France to victory

FRANCE SAFEGUARDS HER YOUNG: A French soldier lifting a baby into a train full of evacuee mothers and children bound for districts out of reach of German bombs. The recent raids on Paris have proved to the mothers of France the extent of Nazi ruthlessness

THE LAST PHASES at DUNKIRK

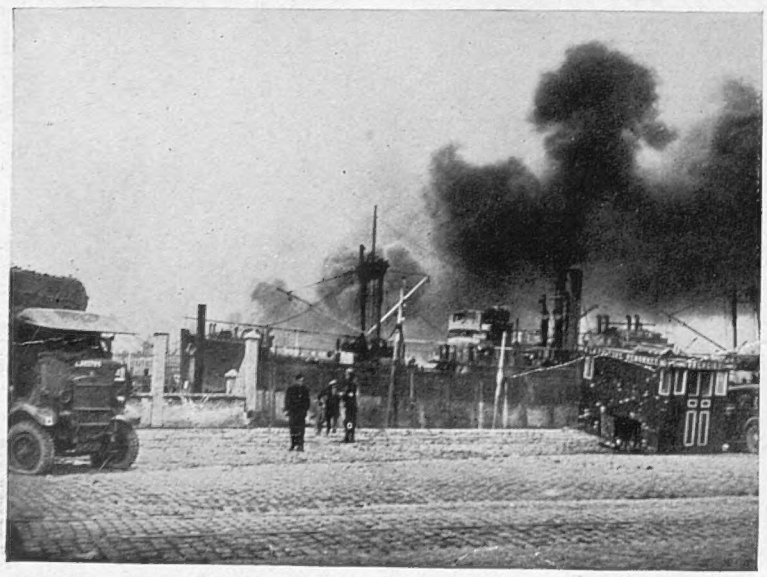
Scenes During the Retreat to the Coast; and in the City of Dunkirk Itself

THE MENIN GATE—A BRITISH ANTI-TANK POST ESTABLISHED OUTSIDE THE HISTORIC GATE ITSELF—KNOWN TO ALL WHO FOUGHT IN THE LAST WAR. IT WAS ALONG THIS ROAD TO YPRES THAT THE B.E.F. AND FRENCH RETREATED ON TO DUNKIRK

YPRES—ONCE AGAIN THIS FAMOUS BELGIAN TOWN—SO BADLY BATTERED DURING THE YEARS 1914-1918—FELT THE DESTRUCTIVE HAND OF THE ENEMY. THIS PICTURE OF THE DESERTED TOWN WAS TAKEN BY A BRITISH OFFICER AS HE PASSED THROUGH YPRES ON HIS WAY TO THE FLANDERS COAST

DUNKIRK—THE TOWN—A BLAZING LORRY IN A STREET STREWN WITH DEBRIS AFTER AN INTENSIVE GERMAN AIR ATTACK. A FEW MINUTES AFTER THIS PICTURE WAS TAKEN A COLUMN OF ALLIED TROOPS MARCHED PAST THIS SPOT ON THEIR WAY TO THE DOCKS

DUNKIRK—THE HEART OF THE TOWN—THE PLACE JEAN BART IS THE CENTRE OF THE TOWN, KNOWN TO THOUSANDS OF THE B.E.F. DURING 1914-1918. HERE ALL THE PRINCIPAL SHOPS AND HOTELS WERE CONCENTRATED. THIS IS WHAT IT LOOKED LIKE WHEN THE DEFENDERS LEFT IT TO THE ADVANCING GERMANS



DUNKIRK—THE HARBOUR—THE PALL OF SMOKE OVER THE DOOMED CITY WAS CONTINUOUS THROUGHOUT THE EVACUATION AS THE ENEMY AIR FORCE AND LAND ARTILLERY SOUGHT TO ENCOMPASS THE DESTRUCTION OF THE ALLIES ON THEIR WAY TO THE BEACHES

DUNKIRK—THE BOMBARDMENT—UNDER THE RAIN OF SHOT AND BOMB THE HEROIC TOWN CRUMBLES INTO RUINS. THIS PICTURE OF ONE CORNER OF THE ONCE PLEASANT AND THRIVING PORT OF DUNKIRK WAS TAKEN WHILST A HAIL OF SHELLS WAS ACTUALLY FALLING ON THE DOOMED TOWN

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DAVIDS and GOLIATHS

Our Small Vessels Are Proving Their Worth Against Heavy Enemy Air Attack

By NOEL THOMPSON

BRITAIN'S FAST MOTOR TORPEDO BOATS: Fitted with eight Lewis guns these craft are more than a match for the marauding Nazi bomber. Their exceptional speed and extreme manœuvrability make them a difficult target to bomb

WAR has always produced David and Goliath stories, the fight of the brave little man against apparently overwhelming odds. The characteristics which have always appealed to me in the Biblical story, the courage and calmness of David, who had a workable plan of his own, are repeated. In the same way, wonderful shot that he was with his sling, without being irreverent, I wonder what odds David would have laid about hitting Goliath's one vital spot in the forehead with his first pebble?

The simile is apt and must fit a hundred episodes during the great retreat from Flanders and the evacuation from Dunkirk, whether it was our light tanks against the German heavy mechanised columns, field artillery against German heavy batteries, or bands of our infantry against the massed hordes of the enemy. But I want to look at only one side, of which there were several outstanding examples, and that is the effective work of rifle and light automatic gun-fire against powerful low-flying bombers.

I have been talking with several friends back in this country who had watched such David and Goliath duels, one or two machine-guns on an otherwise unprotected small vessel against constant attacks by armoured bombers with bombs, machine-guns, small cannon, manœuvrability, speed, giving them an apparently overwhelming advantage.

One man was aboard a 50-ton launch hastily fitted with two Lewis guns. After silencing and disabling a German fast-moving motor torpedo boat, for four hours the gunners kept off wave after wave of German bombers. Said my friend, "You could almost *see* the German pilots get rattled when met with bursts of fire. They seemed to want to get rid of their bombs and make for home. Some of them never even made a second attempt to get us. We must have had eighty aeroplanes at various times after us, but our gunners stuck it with their puny-looking guns and we all got back safely." Incidentally, there were some very valuable people on board that launch.

TEACHING MERCHANT SEAMEN TO PROTECT THEMSELVES: A gunnery lecture in progress at a Merchant Navy Defence Instructional Centre where merchant seaman are taught to man the guns fitted on their ships. Many a Nazi bomber has paid dearly for attacking a ship of the Merchant Navy

Then there was the gunner who found a Lewis gun on the beach at Dunkirk and joyfully set about repairing it. He was aboard an equally small vessel which had to wait for hours stuck on the sand, unable to get off till the tide rose. All that time the vessel was attacked. Face and hands black, deaf from the firing of his gun, the gunner stuck to it amid bombs and machine-gun bullets. One German plane was badly damaged. He managed sufficiently to disorganise their attacks so that he and all on board eventually escaped.

A third instance was of two officers working a machine-gun. During their journey across the Channel they actually brought down two bombing planes into the sea.

As for my last instance, don't ask me whether it was good luck or good judgment, because I shall never be able to check up. The Germans were machine-gunning from the air a column of our retreating troops just outside Dunkirk. A Cockney had his Bren gun ready. He let fly as one plane roared overhead at only 100 feet. Flinging his arms in the air he shouted joyfully, "Plumb in the Tommy rose" (a new rhyming slang phrase to me for "nose"), and sure enough the aeroplane wavered, then crashed.

Perhaps that last instance may illustrate the remark a British pilot made to me when I discussed the question with him. "Anti-aircraft fire at a height is pretty terrifying if intense. More than the risk of being brought down is the strain of keeping absolutely calm so as not to affect your aim. But when you are flying at only a few hundred feet a lucky bullet may find its mark in the pilot and it's all U.P. No chance of recovery or baling out in that split second. That's why the Germans don't like it."

Certainly the Admiralty will bear witness to the effectiveness of arming even the smallest sea-going craft with automatic guns. Again and again they have been attacked, and again and again the German has turned tail and looked for something "less heavily armed"—than with two machine-guns!

Now what are the ranges of the modern small arms? The rifle carries 2,000 yards, and the Bren gun about 1,500 yards. The Vickers machine-gun is sighted up to a maximum of 2,900 yards, with its output of 500 rounds a minute. The Lewis gun is less than this, but these are approximate maximum ranges on the flat. For anti-aircraft fire it is usually estimated that 800-1,000 ft. is the maximum effective against an armoured bomber.

"The lower the enemy, the better the chance—and the steadier the nerve of the gunner must be."

One airman put forward the theory to me that the Lewis gun was probably the most dangerous weapon against low-flying aircraft because it was not so accurate! In other words, the kick spread the burst of fire over a wider area and gave more chance for the "lucky" bullet to get home.

Between the small arms and the big anti-aircraft guns there are, of course, the small light guns and pom-poms whose calibre and rate of fire are, naturally, kept secret. But in this connection it is interesting to note the comments to me of another officer just back from Flanders.

"While I was there waiting to be evacuated," he said, "we had only one day which was not perfect for attacking aircraft. That day there was lowish cloud, between 1,000 and 1,500 ft., I should say. One big wave of Germans came over, and hell broke loose from the light A.A.s. It was great shooting and I saw the bombers coming down like driven pheasants. It must have rattled the Nazis because it was the last our sector saw of them that day."

I cannot end with a better tribute than that of a young naval officer who had been across the Channel a dozen times during the evacuation from Dunkirk. I had mentioned to him the subject of this article and the simile I intended to use.

"Make a point, then," he said, "of the fact that it wasn't the sling that brought down Goliath; it was the man behind it."

TWIN LEWIS GUNS FOR TRAWLERS: Two members of the crew of a Scottish trawler operating the guns in the turret erected on the deck of their boat. These defensive measures are countering with success the enemy's attacks on peaceful fishing vessels

THE AMAZING SCENE OFF THE FLAT FLANDERS COAST: A PICTURE TAKEN BY A MAN WHO PARTICIPATED IN THE HISTORIC WITHDRAWAL. This general view of the scene on the beach at Dunkirk shows some of the many vessels which took off the 335,000 men of the Allied forces. On the right is a car blown over during one of the many bombing attacks by the Germans; the beach itself is littered with debris

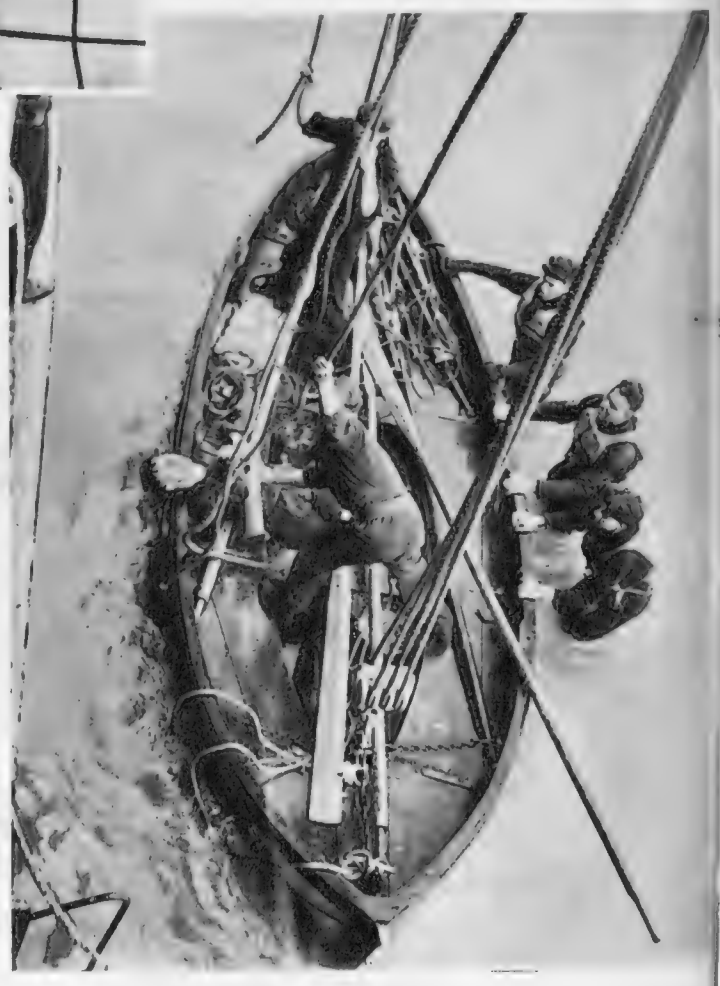
THE EPIC OF THE DUNKIRK BEACHES

A Story of Allied Heroism and Desperate Endeavour which will Live Down the Ages

Above—AN ACTUAL ENEMY BOMBING RAID IN PROGRESS: As bombs were bursting and Nazi bullets were raining down on the beach at Dunkirk our soldiers took what cover they could find on the unprotected sands. Here, for the first time, is an actual picture of the scene—taken from one of the rescue ships

On left—NAVAL RESCUERS HELP A SOLDIER ABOARD ONE OF THE SMALL CRAFT: Vessels of all types, from rowing boats and firefloats to destroyers and cross-Channel steamers, took part in the stirring epic of Dunkirk

On right—A WOUNDED SOLDIER IS HAULED ABOARD A TRANSPORT FROM THE SMALL CRAFT WHICH CARRIED HIM FROM THE SHALLOW WATERS NEAR THE BEACH



Above—WITH THE SHOPS AND VILLAS OF MALO-LES-BAINS AS A BACKGROUND—A naval vessel stands close in shore off Dunkirk, whilst the French and British soldiers move about on the beach. The dark masses in this picture are the greatcoats and the equipment which many of the men abandoned before entering the sea to swim and wade to the rescue vessels

Below—HOW THE RESCUE OF THE ALLIED FORCES WAS EFFECTED: The hundreds of rescue vessels drove up on the beach as far as they dared. The men then reached the waiting ships in rowing boats, or waded through the shallow waters for half a mile or so. They were, of course, helped by the fine weather and smooth seas—otherwise their task would have been much more hazardous

OIL—THE ENEMY OF HITLER

An Analysis of the World's Sources of Supply

By J. WENTWORTH DAY

MEXICO PRODUCES 5,500,000 TONS OF OIL EACH YEAR: Of this total production, Great Britain received 1·7 per cent. of her supplies in 1938. The largest supplier of oil to this country was, strangely enough, Venezuela, which sent us during that year well over a third of our total requirements—more than Iran and the United States together! The above picture from Mexico shows, in particular, the regular spacing of wells, which is the rule throughout that country; this is a cable-drilled oilfield, and it is interesting to note the neat appearance of the company's houses for the employees on the left of the picture

OIL will win this war—petrol and lubricants. Oil is the god of the machine in a war of machines. It turns the wheels and drives the propellers of tanks, guns, ships, lorries, submarines, aeroplanes, and motor vehicles. It is the life-blood of armies, navies, and air forces. Without it they are sunk. Without it Hitler is sunk. Oil is Hitler's bogy. It is the one predominant factor which sets a time limit to his *blitzkrieg*. Without it his iron cavalry cannot move, his raiders cannot fly, his submarines cannot swim.

Who has the key to the world's oil supplies? The answer is—Britain. She owns the vast bulk of the world's oil outside the U.S.A. and the U.S.S.R. Through our trade treaties, possessions, and finance we control oceans of oil in the Persian Gulf, the Dutch Indies, the Near East, Canada, Venezuela, India, Borneo, and even Egypt.

Britain burns up 12,000,000 tons of oil a year in peace and at least five to six times as much in war. But, unlike Hitler, she has it to burn. And she can keep on getting more. He can't. That is the spanner in his works.

Germany used 7,000,000 tons of oil a year in peace and she is burning not less than at the rate of 35,000,000 tons a year to-day. Probably more. She produces 3,500,000 tons of it to-day—a small proportion but a considerable rise on the 1938 figures—and of that 2,400,000 tons is synthetic. Her main synthetic oil plant is near a small town in Hanover—and ten days ago the R.A.F. bombed "objectives in Hanover" with such success that flames rose several thousand feet in the air! So the supply of synthetic oil may not now be what it was.

The rest came, in peace, from the U.S.A., the Dutch Indies, Iran, and Rumania. The first three are cut off to-day. The Navy saw to that.

What of Rumanian oil? We hear a lot about it. Its value is exaggerated. Its output is declining. It has been declining for years. In any case Rumania has stymied the recent German-Rumanian Oil Pact. Under that pact Germany was supposed to be able to buy up to 575,000 tons of Rumanian oil a year. But in the first three months of this year Rumania has sent Germany only 75,254 tons compared with 182,790 tons in the first three months of last year. Less than half. Germany blames transport difficulties. Rumania smiles behind her hand. For Britain has bought 100,000 tons more oil from Rumania this year than she did last. Just a polite form of blockade. The truth is the Rumanians have preferred our hard cash to Germany's semi-dud machinery which she sent by way of barter.

Even if Rumania goes Nazi—as seems possible—the most significant factor now, and for the future, is that Rumania's oil wells are slowly *running dry*. Their production, which was 6,871,000 tons in 1938, has slumped to about 4,500,000 tons. Proof of this is that whereas Rumania exported 1,130,757 tons in the first three months of last year, she has exported only 825,355 tons in the same period this year.

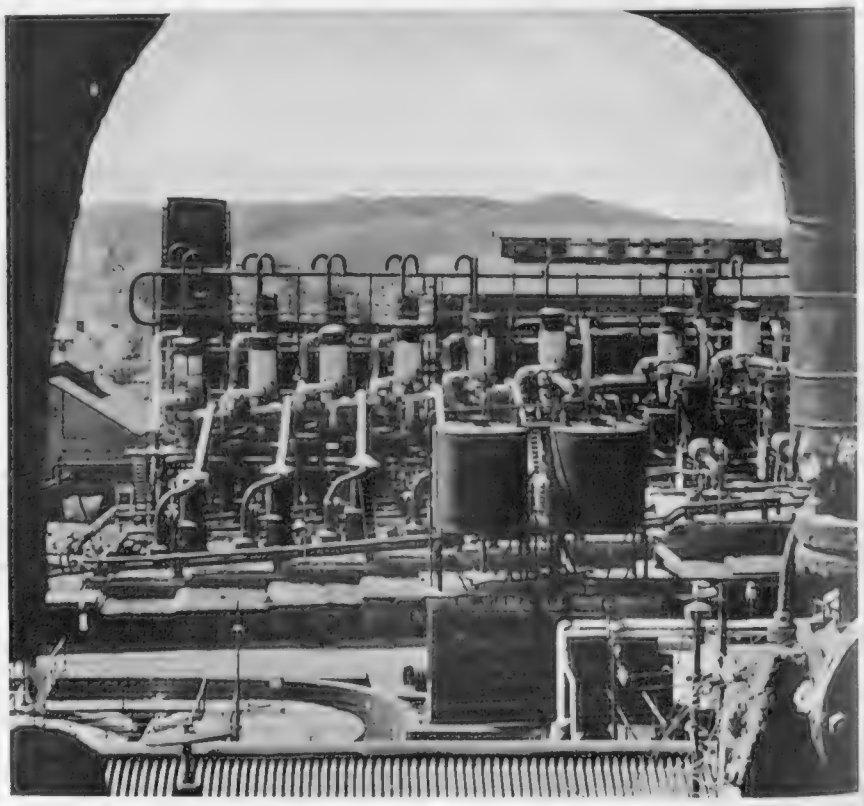
Rumania is not the glittering prize that people think. Even if Germany captured her oil wells intact to-morrow they would not meet her war-time needs by a quarter or a sixth.

In the last war Colonel Norton Griffiths—"Colonel Destruction" as the Rumanians called him—the giant with a hammer who feared neither God nor German, smashed up the Rumanian oil machinery in a spectacular buccaneering raid. To-day stocks of sand and raw concrete stand ready for a less spectacular but none the less efficient method of putting them out of action.

So much for Rumania. Her oil wells, intact or not, are a relatively small prize, bitterly to be fought for. Hitler may well consider whether they are worth the fight.

What of Russia, the land of promise and no fulfilment, the heaven of empty phrases? She produces 30,112,000 tons of oil a year. But she uses it all herself. When, a fortnight ago, she did, at last, send a ship-load of 8,700 tons of oil to Germany via Constanza on the Black Sea the quality was so bad that the Germans could do nothing with it. Typically Russian. In any case, Russia's main lines of oil supply lie across the Black Sea. If Germany invades Rumania, Turkey is in the war. The Dardanelles are open to the British Fleet. One cruiser squadron in the Black Sea can cut those oil lines.

THE METHOD OF DRILLING IN RUMANIA: The oil drill pipe is unscrewed to receive an extra length. Liquid mud is pumped down inside these tubes in order to cool and lubricate the drill



RUMANIA ONLY SUPPLIED GREAT BRITAIN WITH 2·9 PER CENT. OF HER NEEDS IN 1938: Contrary to the general assumption, this country depended very little on Rumania for even her peace-time needs. This picture shows a view of the oil refinery at Campina with a distant prospect of the hills from which the oil is drawn

Now for our own sources of supply. You saw when Holland was invaded that we landed troops at Aruba and Curaçao in the Dutch West Indies. Those two islands contain two of the biggest oil refineries in the world. They turn out 45,000 tons of oil *a day*. Their triplet brother at Abadan in the Persian Gulf produces 11,000,000 tons of refined oil a year. The three turn out *more than twice* our normal civil requirements for the year. And Germany cannot get at any of the three. Sea convoys bring their oil to us, day in, week out. American oil comes to us from Galveston. Canadian, Indian, Borneo and Egyptian oil feeds our ships and aeroplanes in every corner of the world. Their supplies are safe. The Navy sees to that.

What has Germany in reserve? What has she captured from the countries she has raped? No one knows the answer to the first question. But when, as a war correspondent, I asked one of the highest of our military leaders if he agreed that she had probably not more than three months' supply for a full-scale mechanised war on land, sea, and in the air he answered:—"I won't give you a direct answer. But whether you are going on definite information or by shrewd guess-work I congratulate you."

The probability is that Germany can stand the racket of a full-scale mechanised war for three months but for not more than six. We shall see. Recently I examined German aeroplanes shot down in France. Their beautiful Mercedes-Benz engines had been rebored to enable them to fly on inferior fuel. That answers one part of the first question.

Now for the second. What has Germany got from her victims? Very little. Denmark had only 160,000 tons of oil in store. Holland boasted that her army had destroyed all her oil reserves. Germany claimed that she had captured 390,000 tons—not a lot, even if true. Since then the R.A.F. state that they confidently believe that all oil stocks at Rotterdam have been destroyed. So there cannot be a lot of that 390,000 tons left.

Norway had a reserve of 250,000 tons, not all of which is in German hands. Poland only produces 550,000 tons of the poorest quality oil in Europe, and some of that is in Russian hands. So Germany has not come out of her oil burglaries with any swag worth talking about. She has probably burnt up as much as she has gained.

Her own oil reserves have been variously estimated at from 6,000,000 tons—a reasonable and probable under-statement—to 600,000,000 tons—a fantastic total to which an unconsciously Fifth Column printer probably added a stray nought! Even if 60,000,000 tons is the correct figure it cannot suffice her for a two years' war.

If Italy enters the war she will be cut off from *all* her oil supplies, for she produces none and would have to rely on her reserves. No doubt she would like to get at the oil storage plant at Port Suez, almost the biggest in the world, or at the fuel tanks at Haifa, Port Said, Cyprus, Alexandria, Tripoli and the French ports—but the Allied navies bar the way. In any case, once an oil storage depot is captured the oil still has to be transported—and oil tankers are not easily come by in war.

Let us consider this question of the ownership of the oil-tanker fleets, for it is of first-class importance—and by attacking Norway and Holland, Hitler presented us free, gratis and for nothing with over 2,500,000 tons of the finest tanker shipping in the world!

The world ownership of tankers last totalled 11,436,880 tons in the following order:—The British Empire, 3,264,241; U.S.A., 2,800,780; Norway, 2,117,381; Holland (approx.), 500,000; Japan, 429,000; Italy, 426,000; Germany, 256,093.

Most of the Norwegian and Dutch tankers were on the seven seas when Hitler invaded their countries and have since joined the service of the Allies.

Japan's relatively useful tonnage is explained by the fact that although she uses 4,000,000 tons a year in peace she produces only 300,000 tons of it. The Dutch East Indies are therefore of special interest to her.

The average tanker carries from 10,000 to 15,000 tons of oil and takes less than three weeks to cover the Atlantic, a month to come from the Persian Gulf via the Mediterranean, and about seven weeks via the Cape. The British Navy can refuel on oil in any quarter of the globe at any time from Cyprus to Rangoon, from the West Indies to every big harbour in South, East, and West Africa.

Meanwhile, Hitler is burning up his oil, more precious than gold, in this mad midsummer gamble of death.

His big bombers burn a gallon of petrol to every mile flown and his big tanks lumber along at 10 miles an hour and only a mile or two to the gallon. His lesser fry eat into his reserves all the time. And remember that only 3,500,000 tons are being produced at home.

Germany is—and always has been—notably short of lubricating oil. So, petrol apart, the wheels of her war machine may seize up in the actual, as well as the figurative, sense.

TRINIDAD, IN THE BRITISH WEST INDIES, IS A CONSIDERABLE EXPORTER OF OIL TO BRITAIN: About twenty companies are here actively engaged in the production of oil; in a recent year the value of the oil exported approximated 14,000,000 dollars. Great Britain received 6·5 per cent. of her total peace-time needs from this point. The picture above was taken near the famous Pitch Lake in Trinidad

WORLD'S OIL PRODUCTION—1938

(Including Production from Natural Gas)

Countries	Metric Tons	Countries from which Great Britain obtained its Supplies—1938
United States - -	170,432,000	17·5 per cent.
U.S.S.R. (including Sakhalin) - -	30,112,000	2·5 ,,
Venezuela - -	28,107,000	37·9 ,,
Iran - - -	10,358,000	19·6 ,,
Dutch East Indies -	7,394,000	0·7 ,,
Rumania - -	6,871,000	2·9 ,,
Mexico - - -	5,523,000	1·7 ,,
Iraq - - -	4,368,000	4·4 ,,
Colombia - -	3,118,000	
Trinidad - - -	2,583,000	6·5 ,,
Argentine - -	2,425,000	
Peru - - - -	2,222,000	0·7 ,,
British India and Burma - - -	1,458,000	
Bahrein - - -	1,135,000	
British Borneo -	914,000	
Canada - - - -	898,000	
Germany - - -	609,000	
Poland - - -	550,000	
Other countries -	1,199,000	5·6 ,,
Total - -	280,276,000	100·0 ,,

RUMANIA—THE RAILWAY SIDING AT PLOESTI, FILLED WITH OIL TANK CARS: The Germans, in the first three months of this year, received from Rumania 75,000 tons of oil compared with 182,000 tons in 1939, transport difficulties being given by the Germans as the reason for this great falling-off. We depended on Rumania's wells only for 2·9 per cent. of our needs in the year 1938. In the background of the above picture is the Astra Romana Oil Refinery

THE UNITED STATES IS THE WORLD'S LARGEST OIL PRODUCER: 170,000,000 metric tons of oil are produced there each year; before the war Great Britain imported 17·5 per cent. of her requirements from this area. It may be assumed that supplies from this, the world's largest producer, are now entirely cut off from Germany. In some parts of Southern California there is a seep of oil actually along the Pacific shore: where this seep is close inland it is tapped by wells that are actually driven on the ocean floor, and a splendid yield of oil is obtained. The ocean oil field shown in the above picture is near Summerland, California

BRITAIN SPEEDS UP TANK PRODUCTION

Scenes of Intense Activity in the Midlands Where Mass Production is Already in Full Swing

Our new Administration has lost no time in getting down to work now that time is no longer on our side. The Minister of Supply, Mr. Herbert Morrison, has already set up a Tank Board, which is dealing swiftly with the manufacture of tanks. These pictures were taken at a depot in the Midlands

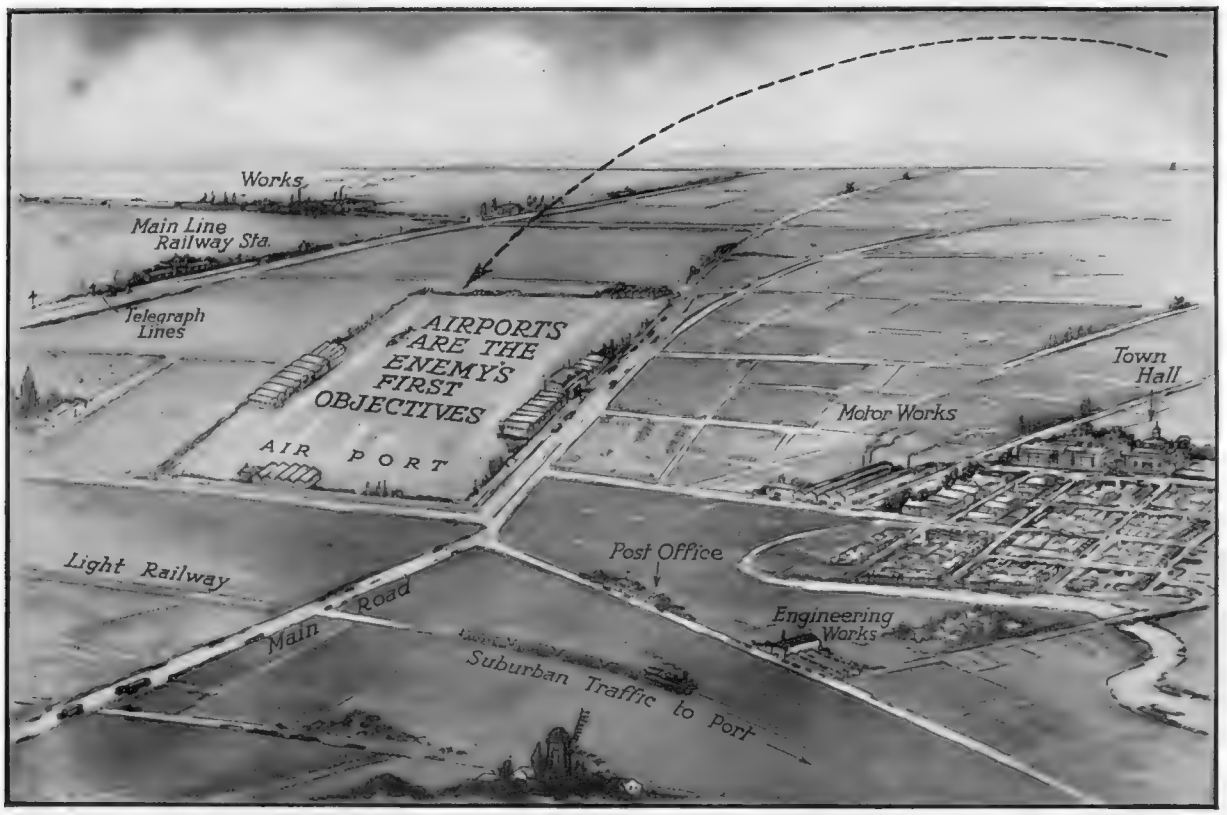
A GROUP OF "CRUISER" TANKS NEARING COMPLETION IN THE ASSEMBLY SHOP: THE TURRET, WITH ITS GUNS, WIRELESS SET AND MOUNTING, WEIGHS 2¾ TONS

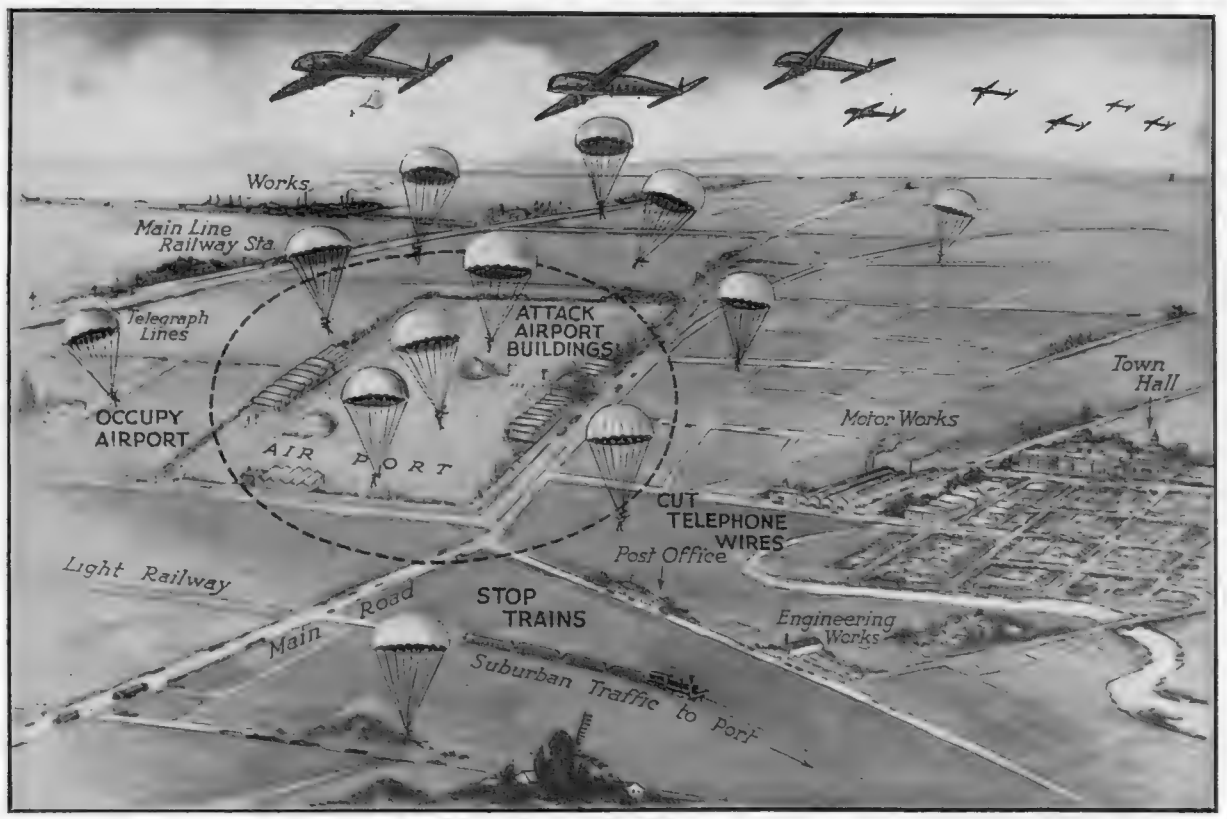
HOISTING ONE OF THE "CRUISERS" INTO THE AIR BY CRANE FOR THE NEXT STAGE IN ITS ASSEMBLY: THERE IS NO WASTE OF EFFORT IN THIS FACTORY

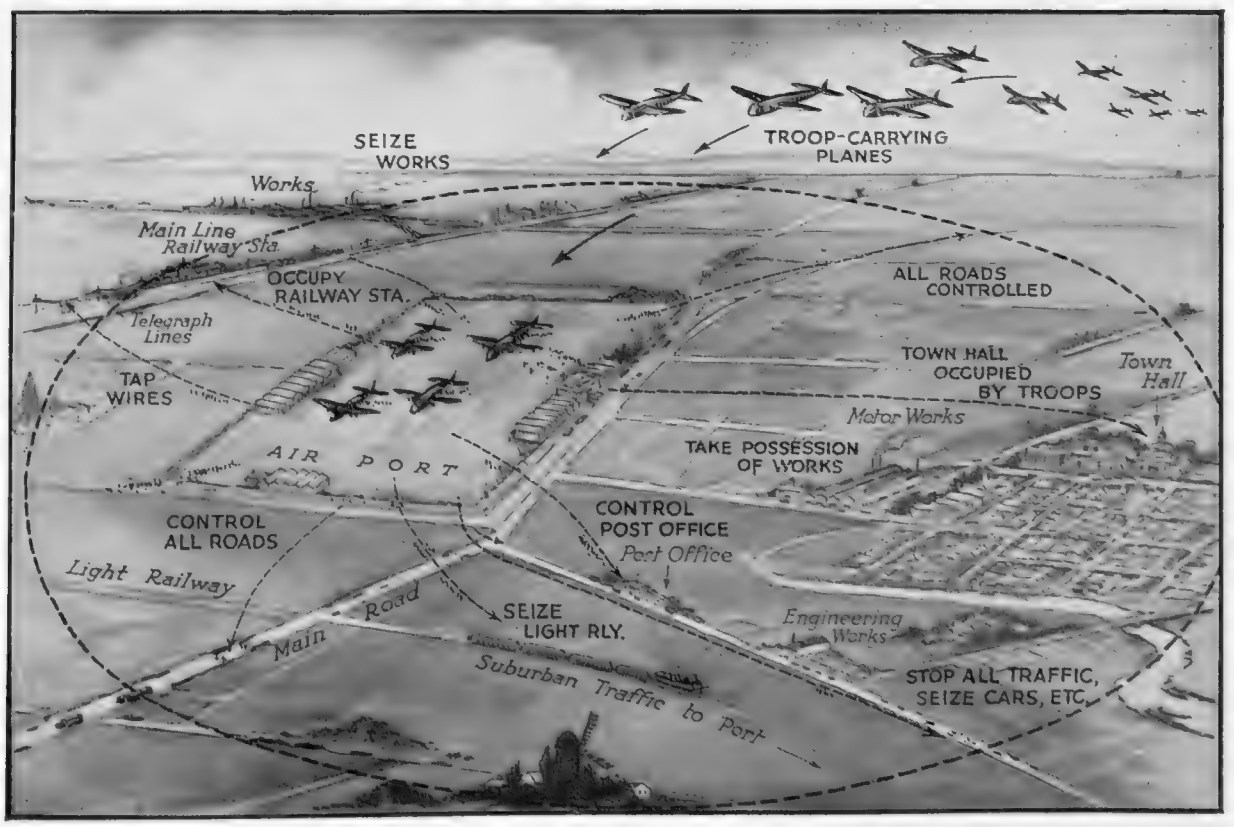
NOW THAT THE NEEDS OF THE ARMY HAVE BEEN FULLY COMPREHENDED, AND NOW THAT IT IS NO LONGER TRUE THAT "TIME IS ON OUR SIDE," THE WORK GOES ON DAY AND NIGHT: THIS IS ONLY ONE WORKSHOP OUT OF MANY TURNING OUT TANKS, MACHINE-GUN CARRIERS, AND OTHER ARMOURED VEHICLES

Above and on left — COMPLETED TANKS MANŒUVRING ON THE FACTORY'S TESTING GROUND BEFORE BEING DISPATCHED TO THE ARMY

The tanks illustrated here are of the "cruiser" type: they weigh about 14 tons apiece, carry a crew of four, and have a speed of 30 m.p.h. over flat land, and 15–20 m.p.h. over broken country. The turret, weighing 2¾ tons with its armament and wireless set, forms one complete unit: despite its weight it is so perfectly designed that it can be swung completely round in five seconds, either by hand or by hydraulic gear. The manœuvrability of these tanks is extraordinary: they are handier than ordinary cars and their acceleration equals that of most small cars. The factory where these pictures were taken was built specially for tank production and has been in full operation only for about two years







HOW THE GERMANS WAGE WAR

Illustrated With a Series of Special Sphere Drawings and Diagrams

BY their new technique of warfare the Germans have virtually abolished the phrase "behind the front," and certainly the point of view that thirty miles behind a strongly held line is a safe distance for rest camps, large supply depots and dumps for heavy stores, protected only against aeroplane attack, is definitely killed. In the last war there would have been weeks, and certainly days, in which to retire in orderly fashion from a place so far from immediate danger. Now Flanders has shown that it is merely a matter of hours.

AIRPORT — THE FIRST OBJECTIVE
The enemy's first objective is the capture of the opposing airports. These may lie far within the borders of the country attacked, as in the case of the Waalhavn Aerodrome in Holland. If the objective is an open civil airport the first move is not difficult

A gap of a mile, a delay of three hours in closing that gap, and the result may be fatal.

Let me go through the process in order, for the orderliness with which the Germans have carried out the movement is one of the greatest contributions to its rapid success.

First the heavy tanks and dive-bombing aeroplanes. No longer need continued heavy artillery barrages and constant shell-fire give warning of an impending attack on a certain sector. Wave after wave of bombing aeroplanes try to blast the defences into disorganisation, while the heavy tanks move up and through, spreading out fanwise and clearing the path for the following medium and light tanks.

INITIAL ATTACK BY PARACHUTE TROOPS
The objective having been determined upon, a flight of parachute troops descend from a number of planes and seek to take possession of the airport. Airport buildings are seized, telephone wires are cut and a light railway train may be stopped

At the first sign of success, aeroplanes waiting not far behind the line are warned by wireless. Twenty take off together and in a few minutes are dropping parachute troops round the nearest open airport, while another flight concentrate on any small important village or town in the rear. The moment they land they know their duties. Some men go for all telegraph wires and telephone centres. Certain wires are cut. From the telephone centres go messages ordering mayors of villages to evacuate immediately by certain roads, false messages of any kind which will cause confusion. Local railway stations will be captured, railway bridges blown up, and reservoirs destroyed. While this rapid work goes on, still more aeroplanes, this time carrying troops, take off. They, too, have been told where they can safely land, by means of the portable wireless which the parachute troops carry. Hundreds of men can be landed in an hour and can disperse to vulnerable positions.

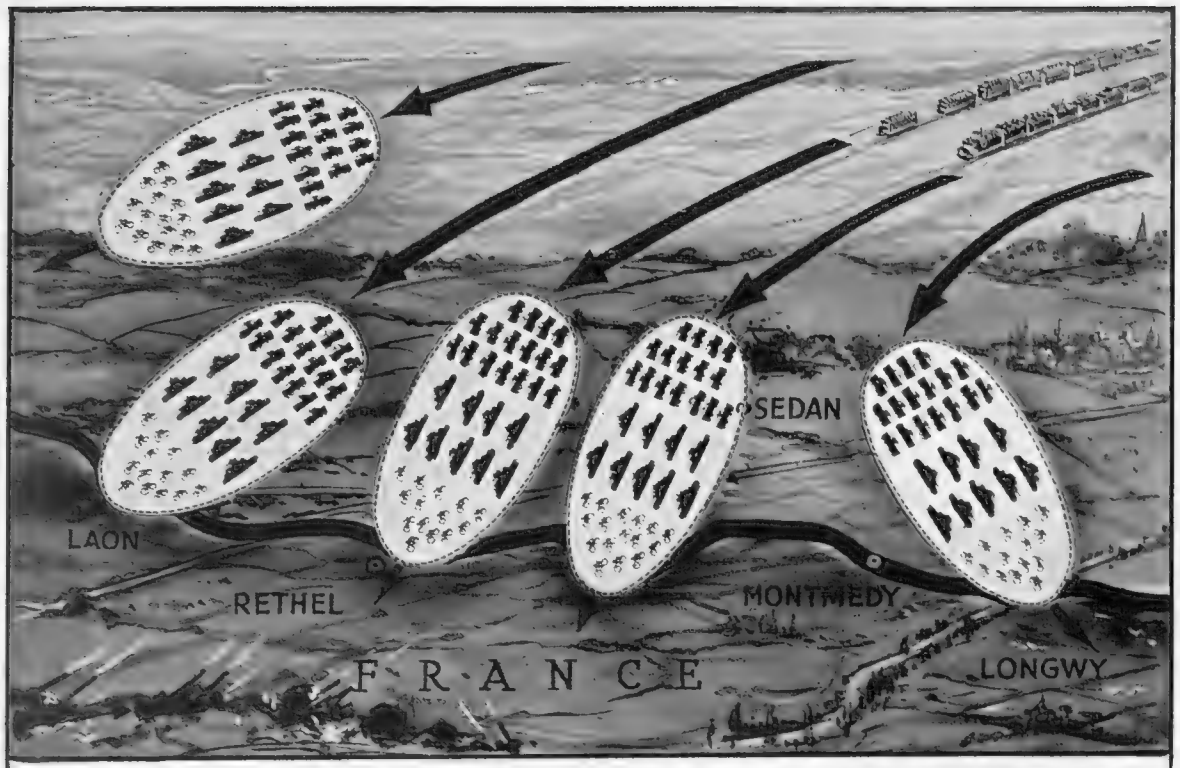
ENLARGING THE AREA WITH PLANE-CARRIED TROOPS
If unopposed, the enemy will extend his area of control by landing troops from large planes which alight at the airport. With increased numbers the area of occupation is extended. Main line station, factories and Town Hall are seized

Meanwhile, under cover of the heavy tanks come the motor cycle corps, well armed, quicker moving than the cavalry scouts, their equivalent in the last war, ready to penetrate far ahead and sideways in herring bone pattern, a

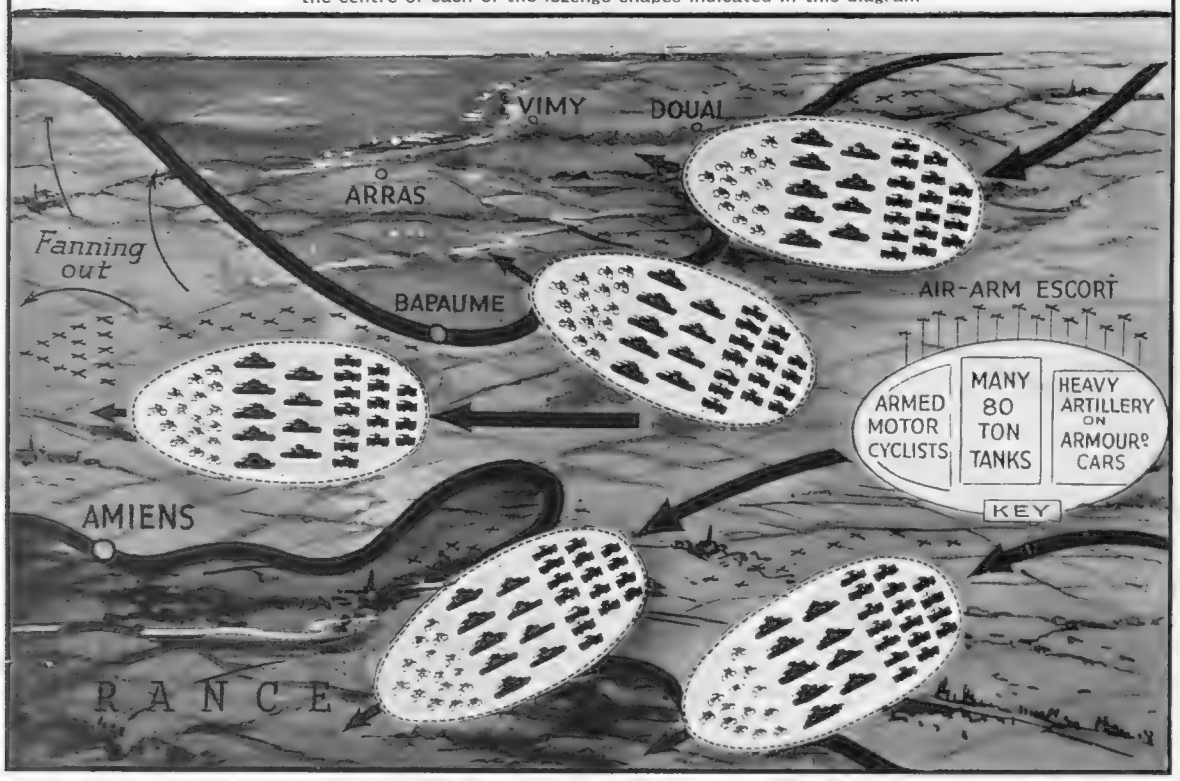
(Continued on following page)

HOW THE GERMA

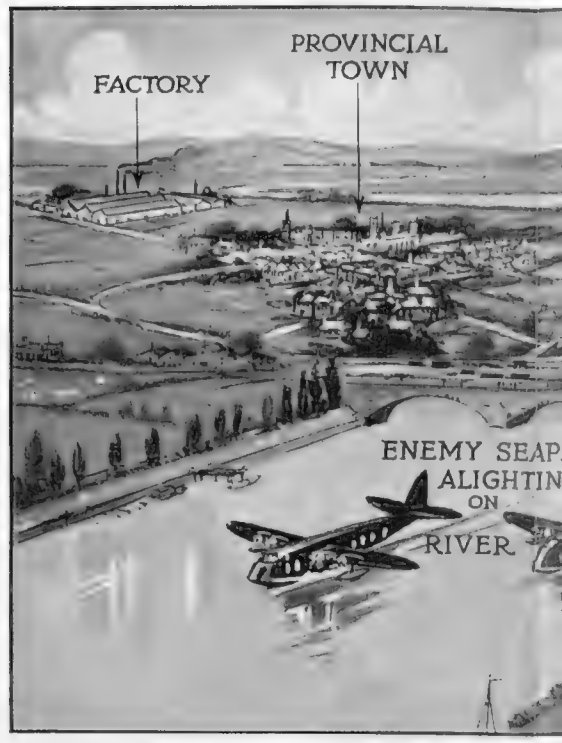
A Special Sphere Section Describin



THE MECHANISED UNIT OF ATTACK: The attack takes the form of mechanised units of motor cyclists, light cars and heavy tanks, which endeavour to break through any static opposition. The heavy tanks are shown in the centre of each of the lozenge shapes indicated in this diagram



MECHANISED UNITS THROWN AGAINST SELECTED POINTS: A key to the unit form of attack is shown on the right; around and above the unit is the air-arm escort, an essential component of the German thrust movement. Without that constant aid from the air, the units would lose much of their power



LANDING TROOPS BY SEAPLANE ON RIVERS: One enemy device for penetrating the opposing country is to employ troop-carrying planes. They may

ENEMY SEEKS TO PENETRATE ZONE BY INFILTRATION: A defending army is attacked not continuously along a line, as in the 1915 to 1918 fighting, but at certain points in great force. The advancing

(Continued from preceding page)

dashing mobile weapon confident in the fact that not far behind, and in touch by field wireless and dispatch rider, are the light tanks ready to support them and consolidate their gains.

Thus, as through the small breach in a dyke, the flood flows and the infantry infiltrate, turning outwards to make flank attacks as the flying column ahead pushes on. Behind the infantry the supply columns are mobilised, and the War Office has officially given credit for the wonderful way in which the supplies are organised.

And what is the danger to the Germans? If the original break through fails, a few tanks, the parachute troops, and a few thousand men, maybe a division, are lost. But if it succeeds and the gap is held and gradually widened, it may be the turning point in a battle, and, as in Flanders, in a whole campaign.

The defence against these tactics calls for the distribution of troops over a wide area. Every civilian must be so organised as to know not to accept orders which may be false. Factories and works, which would be among the first places to receive the attention of parachute troops and troops landed behind the lines by aeroplanes, must be strongly guarded. Railway lines and important road junctions must be protected. Already in France there have been cases where small bodies of troops holding quarries, or batteries of artillery in woods, have been surrounded, their supply columns cut, and they have either been killed or captured by these flying columns of Germans coming on them unexpectedly.

All open spaces where planes can land are potential danger spots. In Holland the Germans used seaplanes with some success for landing their troops behind the line. Twenty well-armed men with explosives can cause a lot of disorganisation in an amazingly short time, blowing up river bridges and canal locks.

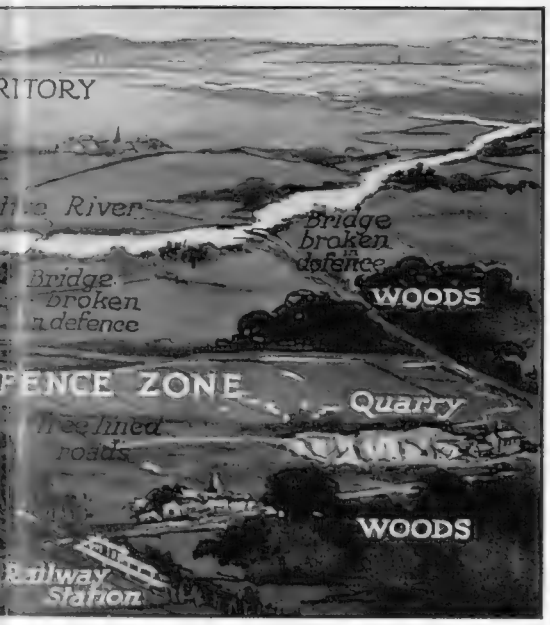
What is the answer? First, a superior and ever active air force to give warning of any such move and of any troops grouping as though such a break through were intended. Then superior

THE ARMED MOTOR CYCLIST AS SCOUT: The enemy has been employing to the full the armed motor cyclist, with or without sidecar. Sometimes two scouts are sent ahead. If they encounter opposition and escape, they inform the main body behind them. At this stage the fortune of war is apt to sway from one side to another. These cyclists are the modern representatives of the former cavalry scout

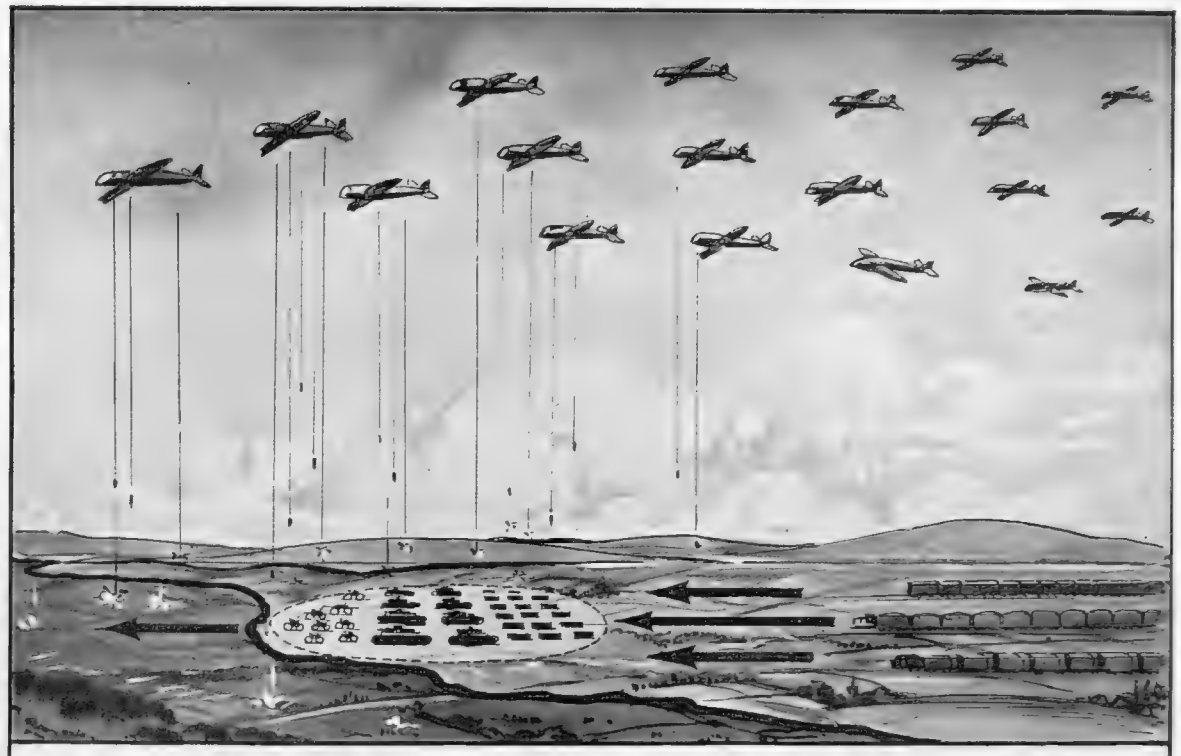
MANS WAGE WAR

ibing the New Military Technique

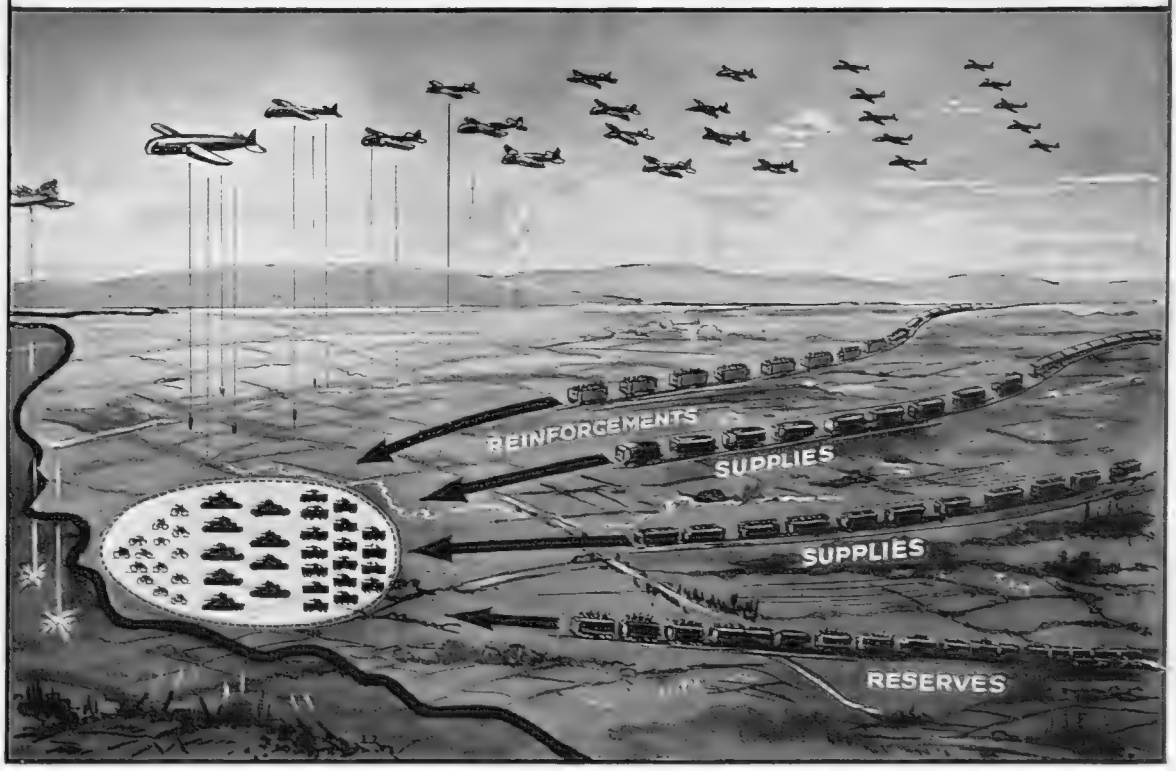
take the form of large seaplanes which can alight on rivers and estuaries. This form of attack was successfully practised in Holland



units have to be sufficiently powerful to break down any artillery or other opposition grouped in the natural cover which a given district affords. One can no longer speak of a defensive line: one must refer to a defensive zone



THE AIR ARM FACTOR IN THE GERMAN THRUST: The German air arm in the form of heavy bombers seeks to observe all opposing troops, tanks and batteries, and to destroy as much as possible in the path of the oncoming mechanised units. The enemy has been using these bombers in numbers to dislocate the defensive scheme



TROOP REINFORCEMENTS FOLLOW THE TANK'S PATH: A Fighter Screen is deputed to accompany the bombers in order that they may be able effectively to carry out their bombing tasks, a very necessary precaution. Following a successful forward movement of the units, supplies and troops are then pushed forward

LIGHT CARS PRECEDE THE HEAVIES: Following the motor cyclists come a number of light tanks who also feel their way towards possible opposition. Their task is to dash down all the roads to gather information, damage telephone wires, and perform other destructive tasks. At the same time parachutists will be alighting in neighbouring meadows

bombers to prevent supplies reaching the flying column in support and to try to isolate the break before it grows to dangerous proportions—and that must be done quickly. And then, well arranged reserves in depth behind the whole front line.

But most important of all, preparedness. It has been said of the British in this war that one of their outstanding traits has been their permanent capacity for being surprised at anything the Germans do. This time we shall not be taken by surprise, and the quick-thinking French Army knows exactly what to expect and how to counteract it.

Credit must be given to the Germans for their invention of this new method of warfare. It has proved successful once and it is certain that the Germans will try it again. But I repeat that in our favour is the lack of the surprise element, and, we hope, the absence of Fifth Columnists.

The composition of Germany's armoured divisions (*Panzer divisionen*) has now been fairly well established. Germany has twelve of these divisions, and each of them consists of 11,000 men and at least 400 tanks In addition to the latter there are the usual motorised vehicles—about 2,000 armoured cars, motor-drawn artillery lorries, motor supply wagons, radio cars and motor cycles.

Within each armoured division there are four tank regiments; two of these form the spearhead of the attack and are used for the initial break through. Their advance is made by means of three dozen 20-ton tanks per regiment, each armed with cannon. After the break through has been made, the other two "assault" regiments press home the attack, each regiment having 136 tanks of 10 tons, each mounted with machine-guns.

When the enemy's lines have been pierced the armoured divisions then pursue the tactics which proved so successful in Belgium—they fan out and occupy as wide an area as possible, followed as quickly as conditions permit by a horde of armoured cars, motor-mounted artillery, and mobile infantry. The new German military theory has completely overthrown the old concept of war—no longer is it possible to hold one long continuous line; in its place we now have "zones of influence" which are created to hold the invaders and to isolate and to immobilise the enemy's advancing armoured divisions and motorised columns.

SHOOTING DOWN THE ENEMY'S AIRCRAFT

With Special Notes on the Germans' Coastal Craft; and on the New British Boulton Paul Defiant—*By Charles G. Grey*

(Founder of *The Aeroplane*)

WHEN aeroplanes came into the King's Fighting Services there were those of us who believed that they would dispel the fog of war.

But in spite of the air being filled with the thunder of aero-motors the war news seems to be foggier than ever. Whether that is because nobody knows what has happened or whether official communiqués of all three Fighting Services for good reasons do not tell us all that the people want to know, will perhaps be known when the war is over.

But the outstanding fact is that our fighters have shot down fantastic numbers of German fighters and bombers. And knowing the R.A.F., I do not question the accuracy of our official figures. As Mr. Churchill said in the House, the R.A.F. has won a great victory over the enemy Air Force.

A WONDERFUL FIGHTING RECORD: This squadron arrived in France on May 10, a date which coincided with the invasion of the Low Countries. They lost no time in engaging the enemy, with the result that the squadron's unofficial record (maintained by the pilots themselves) was forty-five enemy aircraft shot down in just over a fortnight's activity. In the picture above, the commanding officer (in tin hat) is shown with some of his pilots who had just returned from patrol

The tendency of the R.A.F. High Command is rather to knock off some of the numbers to ensure accuracy than to add on doubtful victories to encourage the people. Also knocking off the doubtful ones encourages the R.A.F. itself. In the last war there were certain people who definitely over-stated their claims to victories in collusion with one or more members of their own formations. When that was discovered, the High Command shut down firmly on anything other than unquestionable evidence.

Some of the youngsters of to-day are inclined to "shoot a line," and who can blame them? Cyrano de Bergerac was none the less good as a fighting man for being a confirmed line-shooter. And there is no use in humbugging ourselves that everybody in uniform, even in the Air Force, is a combination of Sir Galahad, Sir Philip Sidney, Drake, Frobisher, George Washington and all our V.C.s rolled into one.

Let us be realistic and be thankful that ordinary gallant young Englishmen, of whom the R.A.F. is composed, have been able in about three weeks to destroy some three months' output of German front line machines. The R.A.F. deserve all the thanks we can give them. For the destruction they have done means that the Germans have that much less material with which to make nuisances of themselves in this country—and their losses in personnel must be even more serious.

The anti-parachutist organisation brings the war home to the people of this country in the same way as did the building of Martello towers in Napoleon's time and the wiring and concreting of the east coast in 1914. But for the Martello towers Napoleon might have had a cut at landing a force on the coasts of Kent and Sussex. But for the defences on our east coast, the Germans might have tried at any rate an unpleasant raid such as was foretold in that informative book the *Riddle of the Sands*.

It is well worth studying to-day, because it is the only book which gives one a proper understanding of what might be done in that country behind the islands along the west coast of Germany and Holland. That the patriotic Englishman, Erskine Childers, who did all that work before 1914 should have been shot as an Irish Sinn Fein rebel after the war is one of life's major ironies. Few people know that Brigadier-General Shepherd, one of the best R.F.C. Brigade-Commanders in France in 1917, who was killed in an accident on an aerodrome in France, had made a hobby before that war of doing the same sort of reconnaissance or spy-work as an amateur yachtsman—only he did not write a book about it.

One of the matters about which official communiqués might have told us more is the German use, during the withdrawal of the B.E.F. from Dunkirk, of their speed-boats, which carry two torpedoes and a pom-pom for use against aircraft. They seem to be much the same thing as the coastal motor-boats which our Navy used effectively along the Belgian coast in 1916 and onwards, and later used in the Black Sea and the Sea of Azov and the Caspian during our war against the Southern Bolsheviks.

The first mention of those craft was in the broadcast of May 31 when a British cavalry officer told of a fight against one of these boats on his way back from Dunkirk. Apparently after the German boat had missed their small ship with two torpedoes he and his men put its crew out of action by volleys from their tommy-guns.

The assumption is that those boats come down the Rhine and out through Holland. They ought to make good targets for our coastal reconnaissance aeroplanes, which were merely intended to scout for submarines and mines along the coast of England, but have been doing absurdly heroic things all the way from Norway down to the coast of France.

THE "DESTROYER OF THE AIR": This Boulton Paul Defiant squadron accounted for no fewer than thirty-seven enemy aircraft in one day without loss to itself. One air-gunner alone shot down eight of the enemy in one encounter

The R.A.F. itself has numbers of Hubert Scott-Paine's power-boats, and Vospers and other speed-boats, which we may assume have been doing good work on the French coast in picking up the people of the B.E.F.

We ought to be thankful for the fine weather of those perilous days, and for a couple of days of fog among them. If there had been a gale from the south-west I wonder how many men would have been got off from Dunkirk?

The surprise of the later phases of the fight in Flanders has been the Boulton Paul Defiant mono-planes. They were built to a new idea in air tactics conceived by one section of the Air Ministry. Hitherto the pilot has always been the Captain of the ship, and has always had guns in front which he has aimed by manœuvring to suit. The aft gunner has been there to protect his tail, and to get a shot if the pilot thought of putting him where he could get one.

Hitherto there has been a theory that one could not fire broadsides from a high-speed aeroplane, because as soon as the bullets leave the muzzle of the gun they are travelling sideways through the air at the same speed as the aeroplane. The spin of the bullet against this side pressure causes it to spin upwards when fired from one side of the aeroplane and to spin downwards on the other side. And as the amount of up or down spin varies with the speed of the aeroplane, no possible sights can allow for such variations.

But with four guns firing tracer or incendiary bullets at a rate of 4,800 bullets per minute (1,200 per gun) the gunners find that they can aim their guns as one aims a hose, by watching where the discharge goes. And, as the German guns have only a slight traverse, the pilot of a Defiant can bring his machine close alongside the beam of a German machine, and a very short burst from the four guns is enough to sink it.

This spinning up or down of the bullets is known as the Magnus effect, after the scientist who worked it out theoretically, or as the Cazeau effect, after some gunnery experimental station, I believe in France, where it was tried out. And, as so often happens, theory has been defeated by practice.

No doubt, as the result of capturing shot-down British machines, the Germans will soon have power-driven gun-turrets. Our job is to produce new types of aeroplanes to beat the new German types.

Ardent parashots should note that there is under the Air Ministry a civil air organisation called Air Transport Auxiliary, whose duty is to ferry aeroplanes from the makers' aerodromes to the Service aerodromes, and to fetch aeroplanes back to repair depots and so forth. In the A.T.A. organisation are a number of women pilots of high ability. The ATAboys and the ATAgirls, as they are naturally called, wear dark blue uniforms with gold rank stripes, and on their chests they wear wings which have A.T.A. in them instead of R.A.F.

So far as I know, none of the A.T.A. organisation has as yet had to descend by parachute—touching wood firmly as I write. But there is always a possibility that they may do so at any hour between dawn and dusk. Consequently if a parachutist who has been discovered by a parashooter emerges from his or her flying suit in a dark blue uniform instead of R.A.F. blue-grey, that is no evidence that he is a German spy.

Even the A.T.A. themselves admit that there is a certain grim humour in the situation. But such a position might be very serious.

THE SPHERE is a proper place in which to give prominence to this warning, because I get so many letters from retired Navy, Army and Air Force officers all over the country about these articles that I feel sure that these notes will reach many such officers who are now organising the parashooters.

Another point worth mentioning is that the absurd stories circulated about American aeroplanes annoy our good and loyal friends in the United States as much as they annoy us who are on the inside of British Aviation. I cannot believe that Mr. Ford ever said that given six months he could produce a thousand aeroplanes a day. Whoever circulated that ought to have six months himself. Apart from the folly of thinking that within six months jigs and tools and factory space for such an output could be produced, even in the United States, nobody would want a thousand machines a day of one type. And if we got them who could hope to produce enough pilots to man them, let alone gunners, navigators, radio men and so forth?

Another absurd story is that 600 private owners in the United States are offering to sell their private aeroplanes to this country for training and for artillery observation. The story says that they want to sell them, and not that they are offering to give them to us. But even so a menagerie of odd private types would be no use either in the Elementary Training Schools or with the Army in the field. For either service we must have standardisation. Otherwise repairs would be impossible for lack of standardised spares.

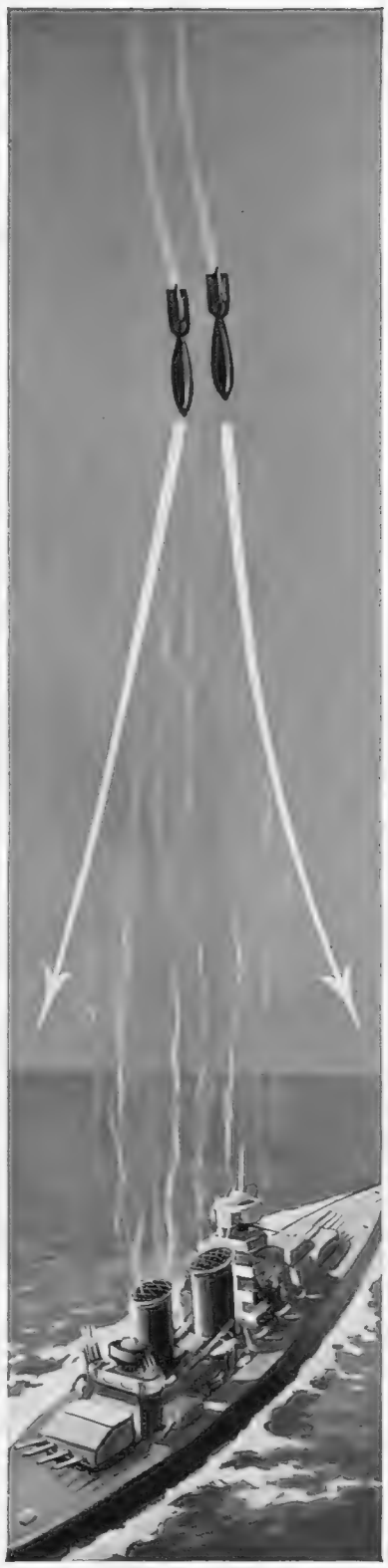
Just to show that war is not unadulterated gloom here is something more cheerful. I wrote to a friend who had been promoted congratulating him on having achieved what in the Army is called Field Rank. He answered that so far as he could make out his was only an "Emergency-Landing-Field Rank."

BOMBING FROM GREAT HEIGHTS

Factors Which Contribute to its Uncertainty

A TRAIN OF BOMBS, arranged on their odd-looking towing gear. The bombs are held in place by straps on shallow containers

LOADING A 500-LB. BOMB into a Hampden. The doors are open and the bomb, complete with carrier, is about to be raised



HOW BOMBS MAY BE DEFLECTED FROM THEIR TARGET; AND THE USE OF THE SALVO: The first two diagrams on the left show causes for deflection. If bombs are dropped from a great height they are apt to be deflected from the target by cross-currents of air which are difficult, or impossible, to estimate. The heat rising from towns helps to accentuate this, and also the hot currents of air ascending from a battleship were noted during the Great War to have the same effect. The third diagram shows the use of the salvo; the single bomb is frequently replaced by the salvo of five, which straddles the target and ensures a hit

BOMBS FALLING NEAR AN AIRCRAFT-CARRIER, but not near enough. Three bombs have burst in the vicinity of the aircraft-carrier. On the left, showing faintly, is the haze of black high explosive smoke and spray from a bomb which has burst a few seconds before, and in the middle is one which has just burst. Both these bomb bursts were over 100 yards away. On the right is a bomb actually bursting. The black dots in the top left-hand corner are high explosive bursts from our own anti-aircraft barrage

MISSING A SALVO OF BOMBS by adroit manœuvring. This is possible when there is plenty of sea room and the captain has a sixth sense of the next move from the air. The swirl of water shows how the big craft has been using her helm with surprising agility for so huge a mass

WITH the FRENCH ARMÉE de L

OFF ON PATROL: An R.A.F. pilot, standing on the wing of a Potez, wishes luck to the French pilot who is just about to take off. The two forces are frequently sharing aerodromes in France and one can frequently see a helping hand being given to a ground crew—there is, in fact, a pleasant helpfulness and rivalry between the associated air forces who study each other's particular methods with keen interest

PREPARING TO LOAD UP FRENCH BOMBERS: Stacks of bombs (with their stabilising fins prominently discernible) are being moved into position in front of each bomber to await the actual loading up

Below—

Mechanics at a French aerodrome checking over the petrol tanks and verifying the armament before certifying the plane ready for its next flight

A FAST INTERCEPTOR PLANE OF THE FRENCH AIR FORCE: This Dewoitine D 520 is one of the speediest fighters in the service of the Armée de l'Air. It will be noticed that the pilot is placed well back in a cockpit over the trailing edge of the wing. The Hispano-Suiza engine gives him a speed of 329 m.p.h.

A KEEN FRENCH PILOT is just about to take-off to meet the enemy. Over his mouth is the wireless apparatus to transmit messages whilst in flight. For the next two or three hours this fighter pilot will be quite alone in a hostile world. His life depends on quickness of sight and rapid reactions

AIR

Planes and Personnel of the French Air Force

LOADING UP AN AMERICAN BOMBER NOW BEING USED BY THE ARMÉE DE L'AIR: These new twin-engined bombers, which are now in the front line of the French Air Force, are here shown for the first time

FRENCH AIR FORCE OFFICERS CONGRATULATED by M. Laurent-Eynac, French Minister of the Air. These members of the French Air Force are wearing the peaked cap worn on the ground for formal occasions such as this

DISCUSSING THE DAY'S OPERATIONS at a French flying station behind the war zone. The peaked cap and the beret are being worn

On right—
GETTING INTO FIGHTING KIT FOR THE DAY'S WORK: A typical morning scene at a fighter station in France. The French flying force was very active during last week in the desperate work of repelling the invading bombers of the enemy attacking forces. Points behind the enemy lines were also severely bombed. Convoys were destroyed, 150 tons of explosives being dropped on the battle front during the second day of the big attack. Forty machines were brought down on the same day

SUBM

versus

An Account of of the War at Just been Rele by the

ILLUSTRATED BY MONTAGUE DAWSON

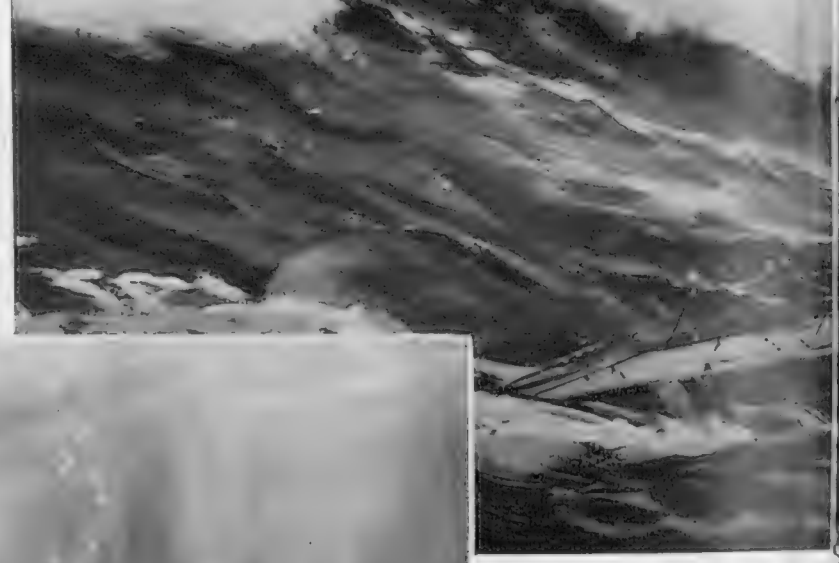
FOLLOWING AN OILY TRACK: Sometimes a U-boat will give away the fact that it has been in the neighbourhood by leaving an oily streak on the surface. This will be more clearly visible in certain types of weather. Such a trail has more than once led to trouble for the enemy submarine

The submarine is such an aggressive type of war vessel against other types of warship and merchantmen that it becomes of special interest to inquire what happens when one submarine encounters another. Here are a few notes describing some extraordinary situations which may arise.

MR. WINSTON CHURCHILL chose a particularly apt phrase when he said that the British Navy was hunting the U-boats with zest; whatever form the hunt may take it contains excitement and zest in plenty, but perhaps the most exciting form of all is by submarine. Contrary to the general belief that this is purely a game of chance, like the South American duellists slashing at one another in a dark room, British submarines actually accounted for more U-boats in the last war than did the famous Q-ships, the figures being eighteen sunk against eleven and that not counting those sunk by submarine-laid mines.

They carried out the operations in various forms. Early in 1915, when the German submarine fleet had been launching attacks on unarmed British fishing craft, just as their planes have been doing recently, a number of small submarines of the "C" class, regarded as obsolete and too small for ordinary service but useful for coast defence, were sent out with trawlers which made a tempting and apparently safe bait for the Germans. The submarine was towed below the surface and connected to the trawler by telephone, by which she received the instructions on how to act and when to slip the connecting wire. When U.40 attacked the apparently harmless trawler *Taranaki*, which had the submerged C.24 in tow, the slipping gear refused to function at the critical moment and it was only the ready wit of the trawler's crew, and the efficiency of the submarine men, that permitted the U-boat to be torpedoed fairly amidships.

Several other submarines were destroyed by this system, which was the original idea of Paymaster Spickernell, Admiral Beatty's secretary, and which was carried into effect by Captain V. Haggard. But it had serious disadvantages, not only by the towing wire and telephone line fouling the propellers, or refusing to slip when necessary, but because the submarine was blind and her dead weight made it very difficult to handle the trawler; with the result that two of the "C"



A SQUALL MAY BLOW UP WHEN WANT TO BE ON THE SURFACE: waves are not a pleasant sight. may find a calm stratum in swell does not

PINNING DOWN AN ENEMY SUBMARINE BY SHEER WEIGHT: This extraordinary condition of things has occurred in inter-submarine warfare. The British submarine flooded her ballast tanks after she had overridden the U-boat and by the weight of her hull kept the enemy ship pinned to the sea bottom in spite of all her efforts to free herself

ARINE SUBMARINE

an Interesting Aspect Sea which has only ased for Publication Censor

DESCRIBED BY FRANK BOWEN

AMBUSH THE ENEMY ON THE SURFACE, IF POSSIBLE: It is desirable to catch the U-boat on the surface, whether she is under escort or not. Then aim is taken through the periscope and, with luck, this is what happens

largely on the hydrophone listening gear which gives the attacker warning without making her reveal herself by coming up to periscope depth prematurely. Even at the end of the late war this gear was still in a very primitive state, but it has since been improved out of all recognition so that part of the job is easier. With modern listening gear, it may be mentioned, it is not difficult to distinguish the different types of ship heard by the beat of their propellers and other noises.

So, as the British submarine fleet is increased, this particular form of hunting will probably be increased also. As a rule the pursuer attempts to ambush the U-boat while she is on the surface, whether under escort or not, and to take aim through her periscope. Occasionally, however, the only chance is to attack a submerged boat and then it is very much a matter of chance. One of the most exciting encounters during the late war was of this kind, when E.50, patrolling off the east coast, sighted a U-boat's periscope through her own and immediately rammed her. In doing so she rode right over the enemy, which tried to come to the surface by blowing out her ballast tanks, carrying the British ship up with her. E.50 immediately flooded her own ballast tanks which weighed down the German and took her to the bottom, where she was kept until her hull had filled in spite of all efforts to wriggle free.

The chances of submarines securing U-boats got so reasonable towards 1918 that the "R" class of British submarine was designed especially for the work. They were the only underwater vessels designed to be faster below water than on the surface, 15 and 9½ knots respectively, and had six torpedo tubes, with particularly large compensating tanks, in their bow for firing salvos of torpedoes. They did not come into the Service until it was too late to give them a chance to prove their worth, but the plans remain and have probably been kept up to date; they could be built very quickly indeed, and had the late war lasted for a few months longer the U-boats would have been forced to run the gauntlet of a large number of "Little Arthurs" as the Navy called them.

HE SUBMARINE MAY hen the fine foam-capped the submarine dives, it hich to rest if the surface xtend too deep

boats were lost through drifting on to minefields.

Small as they were, the "C" boats started the special submarine patrol that was formed at the beginning of 1917 for the primary purpose of intercepting the minelaying submarines, comparatively small vessels of limited range, which were based on Zeebrugge. The idea soon developed and the larger types were stationed at various points of the enemy's usual tracks, finally maintaining a continuous patrol between the Long Forties off Holland and the Skaggerak.

As may well be imagined, the success of hunting by submarine depends very

VERY OFTEN THE ONLY PROCEDURE IS TO WAIT AND LISTEN: The perfected hydrophone enables a submarine commander to listen to sounds under the sea and to distinguish between the beats of various kinds of propeller. Sometimes a submarine may find itself in close proximity to the enemy and the only thing to do then is to lie doggo and await the favourable moment for attack

WHERE THE DRUMS OF WAR ARE YET UNHEARD

Of Moonlight and Mist; The Garden in War-time; L.D.V.

HAND-SOWING IN LANCASHIRE: Mr. David Phillips, senior farm instructor from the King's farm, Ballater, is helping in this country's victory bid. He is a great believer in the centuries-old method of hand-sowing, and he is seen at work on a field in Lancashire which has not been ploughed since 1895

MIST AND MOONSHINE.—There is a great deal of "Mist and Moonshine" about war, and we are doing our best to dissipate it. But certain manifestations of mist and moonshine are such as we have no wish to banish from memory.

One such instance I will put on record. I was watching on high ground just before dawn southward across a valley to the South Downs. Dawn was faintly visible to the north-east. Over the downs and valleys to the south a full moon hung in splendour in a clear sky. The valley was filled with dense mist. This mist, brilliantly lit by the moon, lay flat above the tree tops, for all the world like a narrow

SUSSEX IN JUNE: A corner in the village of Bosham with its cool and placid stream bordered by tall trees which partly hide the old church

arm of sea. Here and there a tree top or group of tree tops stood out through it, like a ship or small island or rock, and the indentations in the downs reproduced the inlets in a sea-girt coast. So, exactly so, have I seen the Black Isle across the Moray Firth from the tower of Cawdor; so have I seen the western end of the Isle of Wight across the Solent from high ground in the New Forest.

The mirage was perfect, the fiction absolutely complete, and the sight one of the most entrancing and curious which I have ever looked on. Even for old gentlemen there are compensations for disturbed nights.

And those who that day showed off with pride to kindly visitors the border of azaleas, the white and purple wistaria, the maples and the lilacs, bear little resemblance psychologically to those who use their names to-day.

We have written off the past, and the future; we have written off possessions and posterity. We have parted with "past regrets and future fears," and we live in a grim present, for the day and by the day, resolute, disillusioned, calm, cold. And that is why I remember that day, May 15, and why I herewith give thanks (in the only way I can) to the anonymous donor and visitor from Worthing who sent me a most welcome present of produce from his garden as a charming "Collins" for his visit. How welcome the facts above stated will prove!

FIFTY ACRES OF PARKLAND GROW FOOD: The Park Committee of Salford (Lancs) anticipated the new Labour Conscription Bill when they conscripted their park attendants to cultivate 50 acres of land to produce food. The men have co-operated with a will and have put in many hours of overtime

A Gift from Worthing.—From the old world in which we still kept one foot even in the first fortnight of May, 1940, a memory comes back to me of a garden neatly trimmed and closely mown and generally tidied up by all the means at the disposal of amateurs. Through it strolled during the lovely summer day nearly a hundred kindly folk interested in gardens and not too "superior" to enjoy a small and very amateur garden. I look back on that day as the last gleam of sanity and civilisation which I have enjoyed.

In that old world we still retained standards of thought and habits which we have now discarded and even forgotten. We loved our small possessions, we knew pride of ownership, we thought in terms of our children one day enjoying what we had enjoyed and possessed. We were house proud, garden proud, even car proud and clothes proud. A weed was an enemy to be "mopped up," a flower a friend to be wooed. A car was a thing to be polished, and clothes a matter of concern, to women at least.

To-day, that garden I spoke of is unrecognisable as what it was on May 15. Its lawn is meadow grass, its grass paths are as woodland tracks, vegetable seeds are in its borders and there is no one with time or energy to spare for gardening, unless for food purposes. The house is a military office and a boarding house for refugees; someone must sleep every night by the hall telephone; the cook, who cooked for thirteen, poor old soul, was removed to an internment camp at half an hour's notice to quit.

Gardens in Mid-June.—The experiences of garden-opening (under the Nursing Institute scheme) during the lovely and terrible May now past brought home to me certain truths and lessons which are worth setting down. In the first days of our greatest national anxiety, in times when travelling was as difficult as possible, when the minds of the public were beset with anxiety and uncertainty, when publicity was reduced to a minimum, money short, time short, and any plan, however trivial, very difficult to make, the response to the appeal to visit the gardens of England, open under the scheme, was extraordinarily good. Many old favourites reported "normal" takings, several new and small-garden recruits were able to send unexpectedly handsome contributions to the noble cause.

What brought the public out? Publicity to a certain extent, of course. Unless the lists of gardens opening, with the dates and directions, are made known to the general public, the scheme must fail, and it is a thousand pities that those journals which were wont to publish the lists have been compelled to discontinue the practice. In this connection, let me say again a postcard addressed to the Queen's Institute, 57, Lower Belgrave Street, S.W.1, will secure the full list of English gardens opening this summer. Kent lists can be obtained from Miss Babington, Christ Church Gateway, Canterbury; Sussex lists from Lady Leconfield, Petworth; Hampshire lists from Mrs. Salmon, 24, St. Thomas' Street, Winchester; Surrey lists from Miss Egerton, Hatchford End, Cobham.

Given the knowledge of what may be seen, the urge to see remains to be examined. Firstly, the effort satisfies a sound wish to help a vital service, never so vital as to-day. Secondly, it satisfies, as nothing else can, a natural human craving for relief from the horrors of war and the tragedy of our thoughts. It enables one to forget the nightmare of human life for a brief hour and, in quiet glades and among gay flower beds, to restore the mind to sanity and wash the soul clean. For one brief hour we mingle again with innocence and beauty, we see in a study of nature permanent things standing like rocks in a wild and changing sea. We comfort ourselves with the knowledge that the nightmare of war and hatred passes, and that humanity will awaken again to a serener dawn, wherein hope and constructive planning, truth, and beauty will blossom again from seeds newly sown.

And thirdly these visits afford another form of relief. They enable people whom the war has deprived of their normal social intercourse and recreation to make new contacts, to enjoy the comfort that in all times is derived from the exchange of ideas, to widen their interests and outlook, and to obtain a better understanding of their neighbours' virtues, characters, difficulties and ways of life. In a word, in a world of blood and hatred and suffering and labour, occasions such as these give strength, relief, recreation, sanity, hope, and new determination to save from destruction the sweets of human existence and the graces of human nature.

L.D.V.: Its Social Opportunities.—The business of organising an area of L.D.V. is proving rich in opportunities which will have a beneficial and permanent effect on social life in the world which will be created after this dreadful page of history is turned. It is a duty and privilege to go into the homes of scores of men who live in one's neighbourhood and whom one has vaguely known by name or face and no more.

Farmers, gardeners, keepers, shopkeepers, transport-men, woodmen, roadmen, labourers and such. One talks to them in their homes and in the silent, communicative hours round dawn and dusk on patrol and at their posts.

One learns the extent of their hours of work in war-time and marvels at their strength and endurance and patient willingness to turn their short nights into day. One hears their views on war and politics, and extracts from them those secret and usually inexpressible things, their strong patriotism, their love of country, their fixed determination to defend their homes and liberty. Every day knocks down a barrier between class and class, every day increases the mutual understanding and respect between man and man, neighbour and neighbour; every day forges links in a chain which must bind us more firmly together as fellow-citizens of a great race in the hard days which lie immediately and remotely ahead. It is heavy but heartening work.

J. G.

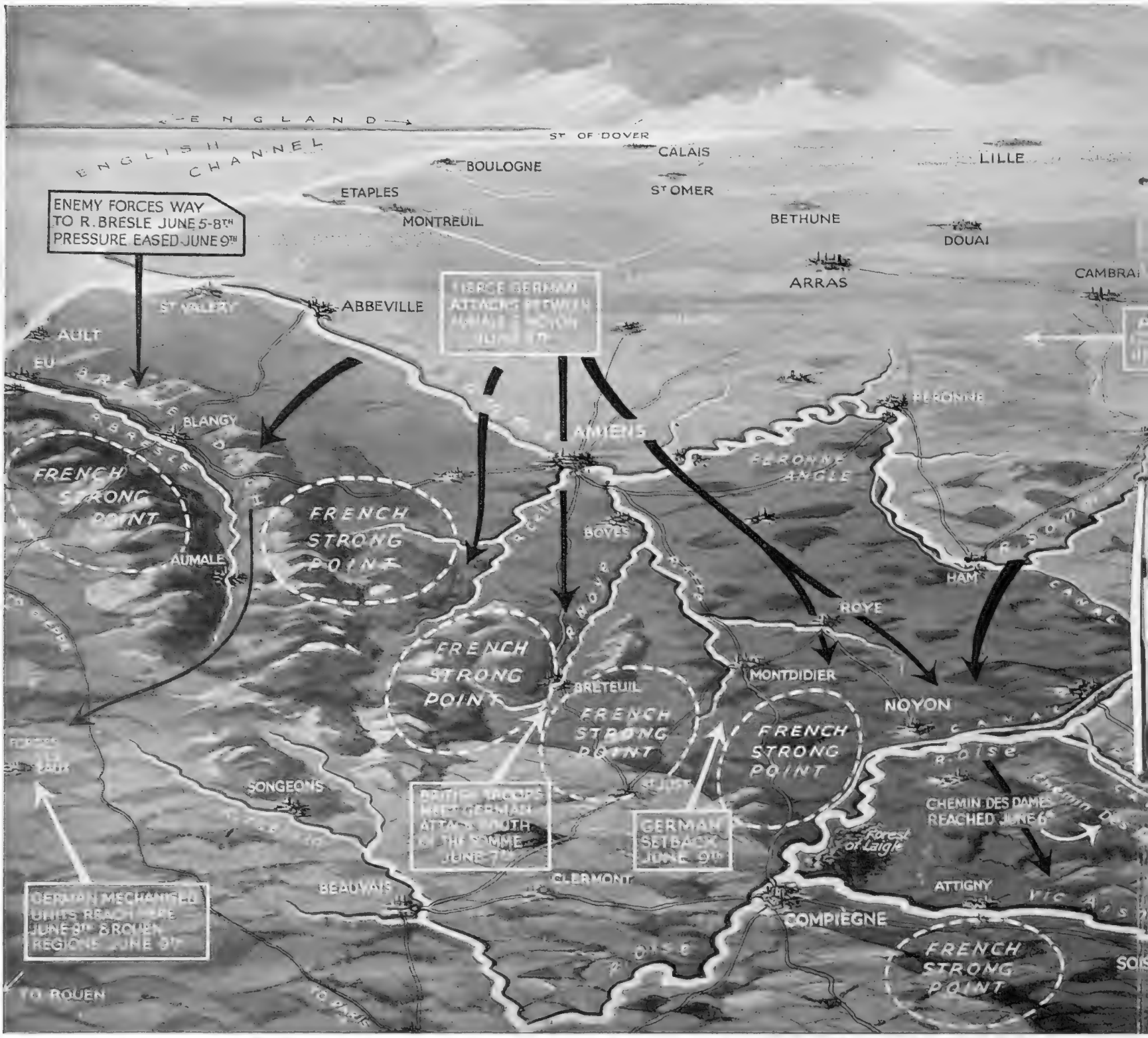
British Troops Fight in a Fierce Engagement

"At some places the Germans have launched infantry in such masses that our men have become physically fatigued with the effort of continually firing. . . . Their faces black with a week's beard and dust caked on sweating skin, they are still grinning, still ready to make another stand. From youngest to oldest they have shown supreme courage and endurance," writes "Eye-witness" with the British Army in France

On left—A BRITISH GUN TEAM which had been blazing away at an enemy which advanced in mass, both in the form of tanks and infantry on foot. *Below*—A tank driver chews a baby's teat to ease the strain of the rough going when proceeding to an action position

BRITISH TANKS GOING TO A SCENE OF ACTION: It was recorded last week that the men holding a position to the left of the Allied line were immensely heartened by a charge of British tank cavalry across open ground in support of the British firing line

SUFFERING FROM A VERY DIRECT HIT. This A.A. weapon known as a Flak 8·8 cm. gun was discovered in this condition. The recoil mechanism had been completely wrecked together with the controls seen on the left. The cylindrical mounting was firmly set on a triple-legged base



PANORAMIC VIEW OF THE WEYGAND LINE (OR BATTLE ZONE) WHERE THE FRENCH HAVE BEEN RESISTING THE ONSLAUGHT OF

The main lines of the German attack which opened with great ferocity on June 5 are indicated by black arrows, the most westerly being that towards the River Bresle, and the most easterly in the neighbourhood of Pontavert, on the River Aisne. Facing these German thrusts are indicated a number of French strong points to which the French official reports make frequent mention. Their position is only approximate and they are indicated here in order to convey an impression of the nature of the resistance which is being made to the German attack. (The subject is treated diagrammatically on pages 340 and 341 of this issue). Passing eastwards there was a violent assault across the Somme between Aumale and Noyon. Advanced forces in the Amiens and Peronne districts were withdrawn to smooth out a big salient. How far strong points were still holding out in this district it was difficult to determine. Eastward of Noyon, the enemy succeeded in crossing the area south of Ham. The Ailette Canal and the famous ridge of the Chemin des Dames were swarmed over and the German forces appeared on the banks of the Aisne. They forced their way across at two points somewhere about the line Compiègne–Soissons; at both points the French fiercely counter-attacked. On the east, the fighting was continuing in the Champagne country. To turn to the west, the deep Bresle ditch held up the German advance as far as Aumale. At this point there was a rush through of light and heavier vehicles and tanks in the direction of the Seine, which was reached

FRENCH ACTIVITY IN THE DEEP BATTLE ZONE OF THE WEYGAND LINE: Everywhere behind the immediate contact positions, French troops have been occupying points where the enemy pressure indicated an early attack. The wooded nature of much of the country facilitated the secret moving of these troops. At the beginning of the past week-end it was indicated that the Germans were employing the following tactics—tank charges with infantry support against the French strong points, whose formidable fire power took a heavy toll of the enemy. The strong points are equipped with artillery as well as smaller anti-tank weapons. The fighting has been fluctuating from time to time, especially between Montdidier and Noyon. It appears from numerous statements by prisoners that in this region the enemy suffered

The GERMAN ONSLAUGHT on the WEYGAND LINE

Where the First Enemy Attack Began on June 5

SCANNING THE COUNTRYSIDE for any signs of a mechanised rush. The enemy continued his tactics of infiltration, which meant that every part of the battle zone required to be watched against a possible break through

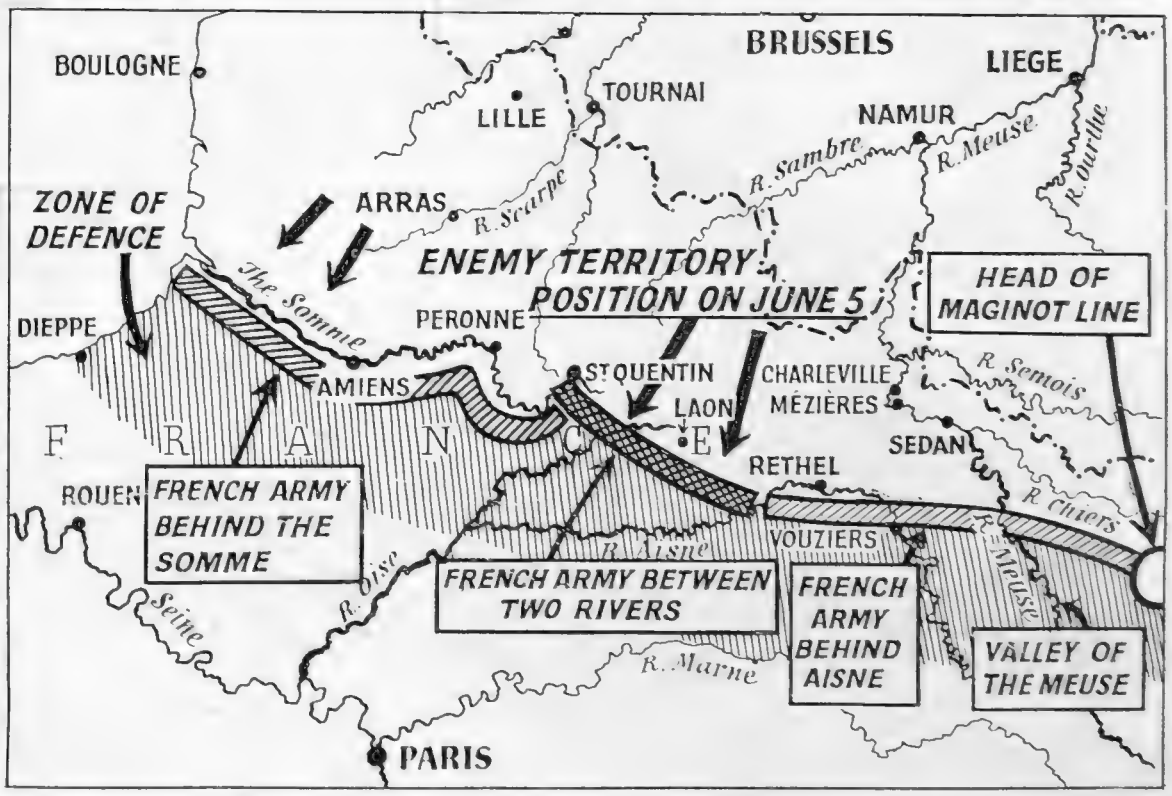
On left— When this map was completed the enemy attack was extending farther to the east, to the head of the Maginot Line

ROADS WERE GUARDED at points where the approach of armoured vehicles could be seen for some distance. "Hold on where you are," said General Weygand in a message to the French troops

On left— The direction of Vouziers is indicated on the annexed map; it was here that German parachute troops were reported to have been dropped. Vouziers lies 24 miles S.W. of Sedan

On right— French infantry marching towards a guard post in the battle zone. Troops have been occupying all kinds of natural strong points during the week

A KEY MAP OF THE WEYGAND LINE AS DISPOSED ON JUNE 5: The zone of defence originally had as its front the Somme, the Oise, the Aillette canal and river and the Aisne. These natural obstacles were not as effective as one might have expected, for the very dry season had reduced the volume of all these streams and rivers. The natural obstacles most effective would appear to be the deep ditch-like estuary of the Bresle which extends up to Aumale. Forty German divisions and some 2,000 tanks, it is estimated, have been thrown against this line



THE GERMANS SINCE JUNE 5

at Forges les Eaux. Later, the same enemy units penetrated to the district of Vernon, a little town on the left bank of the Seine, where there is a bridge. On Tuesday, these efforts were reported to have been held up by rapid counter-attacks. Vernon lies a few miles up the river from Les Andelys, with the famous Château Gaillard overlooking the stream. Large numbers of these units were rounded up. The position of the British force is indicated approximately

serious setback with considerable losses. One of the enemy armies was severely tried in the Soissons area. It was not till early on Friday afternoon that he resumed his offensive after throwing in new divisions supported by fresh armoured units near Pontavert

VICE-ADMIRAL SIR BERTRAM RAMSAY—
THE MAN WHO ORGANISED THE DUNKIRK EVACUATION

That miracle of gallant co-operation, the withdrawal of the Allied armies from Dunkirk, is now heralded and recorded, but not the least part was played by the men of the "dynamo room," a small underground chamber at a south-east coast naval base through which all the details of organisation passed. Vice-Admiral Sir Bertram Ramsay, Flag Officer Commanding the Dover Naval Force, has told how, hour after hour, they stuck at their jobs, unmindful of fatigue. Describing the evacuation, Vice-Admiral Ramsay said: "The only part of Dunkirk harbour where a ship could go alongside was a narrow pier or breakwater on wooden piles. There were no gangways. Narrow mess-tables were put across for gang-planks. About a quarter of a million soldiers walked the plank to safety."

UNQUENCHABLE

This picture was taken in England a few days ago. The poilu, with the torn clothes, cigarette in lips, unshaven chin, was one of the heroic army of General Prioux which held up the German advance long enough to allow 335,000 British and French troops to leave for safety. What can Hitler's armies do when men of such unconquerable courage face them?

The World of Books—By Vernon Fane

Novels Which Bear on World Events

Balanced By a Biography and a Travel Story

ALTHOUGH Franz Werfel's new novel, **EMBEZZLED HEAVEN** (Hamish Hamilton. 8s. 6d.) is in essence a Central European one, and although its significance goes to the very roots of the social life of that country which was Austria, the shadow of political events falls but lightly across it. The author of that famous book, *The Forty Days*, pursues no apparent political purpose in his new novel, but is concerned with spiritual values, and in particular, one of the most deeply rooted instincts in man.

Teta was a Bohemian peasant, with a patient, unquestioning faith in the only scheme of things she understood, in a social system in which she was a very good servant in one of the best Austrian families, and with a profound acceptance of the Catholic faith of her forbears. Her peasant thriftiness and her pitifully small, but carefully acquired, savings over the years were directed to one end only—to ensure the place in the hereafter which her faith believed could only be attained by one means.

To this end she takes upon herself the care and education for the Church of a nephew. This was based on no family affection, no sentimentality, nor even on a sense of charity, but solely for the inflexible purpose that he should become a priest of the Church. For thirty years she never set eyes on him, but read and treasured his letters, and endured his constant demands for money to the best of her slender resources.

Then one day she began to have doubts, and tracked him down, only to discover him to be a despicable rogue and a charlatan, who had been deceiving her for years, and who was living a life of bestial profligacy on her hard-earned savings. At the age of seventy, this, to her, was a terrible discovery, for she was convinced that God would hold her responsible for this wicked life; and in despair, and as a sort of atonement for her imagined sin, she sets out on a pilgrimage to Rome. She is received in audience by the Pope; and in a powerfully descriptive and intensely moving end she dies, with the words of the Holy Father's blessing to make her happy.

Franz Werfel puts into this story the pity and terror of a simple being, the whole purpose of whose life is directed to the only heaven she can conceive. There are various subsidiary characters, notably the family whom she serves, whose own problems form a kind of tragic and intellectual background to her own. The character of the nephew is diabolically contrived, and the scene where Teta meets him and learns the whole squalid truth is the work of a master of descriptive dramatic prose.

One may not agree entirely with the publisher, who declares that Franz Werfel has written a parable of our time, for the author seems to have tackled a theme which he has either not properly understood, or which has run away with him to a point where he is unable or unwilling to draw real spiritual conclusions. Nevertheless it is a novel which must inspire all Catholics, and one which will certainly add stature to Werfel's reputation as a major European writer.

In **THE EAGLES GATHER** (Collins. 9s. 6d.) Mr. Taylor Caldwell continues the family chronicle which began in *Dynasty of Death*. This family, it will be remembered, were the armament manufacturers whose tentacles reached deep into the life of four continents.

It is a social document in the sense that financial power in its worst excesses is here exposed, working within democratic institutions which Mr. Caldwell defends as passionately as he condemns the other thing.

Using his considerable skill as a novelist, he builds his whole thesis on a narrative theme into which he skilfully weaves some fine characterisation and some debatable Socialist doctrine. He is obviously well-informed on the workings of the international financial machine, and its particular incidence upon American isolationism and its drive towards world economic domination. The characters are the immediate descendants of Jules Bouchard, the architect of the family destined to control world armaments, and of that other important family the Barbours. They are a diverse lot, with ruthless men as well as idealists among them. But the book also contains a pattern of the skilful nursing of national hatreds, and of the steps towards German re-armament which led inevitably to the present world-wide disaster.

It is a violent and extremely powerful book; and as a document stands as a grim postscript to what is happening to-day.

Turning to what is meant to be a lighter theme, one comes upon Mr. C. E. Bechhofer Roberts's satire upon the Civil Service, **THE MINISTRY OF WISHFUL THINKING** (Robert Hale. 7s. 6d.). Ambrose Pevensey was a senior civil servant who found himself suddenly having to contemplate the horrors of evacuation. He was destined for a place at which it was brought to his horrified knowledge there was no bath water. Considering that he had for years been frustrating well-intentioned local efforts to procure adequate water supplies in this and other districts, he had every reason to be alarmed.

So he wrote a memorandum, and, with the aid of his half-witted minister, Mr. R. C. Cole, succeeded in establishing the Ministry of War Time Technology, designed, under this impressive title, to ensure the right kind of wishful thinking among the populace. One of H.M. prisons was evacuated to make room for the assorted mob appointed to the technical staff—psychologists, racing tipsters, painters, astrologers, Highlanders with second sight, etc.

The whole thing is designed to be a light-hearted, and even hilarious, joke, but somehow or other, for all his well-directed jibes at entrenched officialdom, and at insolence in high places, the story creaks with unreality. There are bad jokes and good jokes, but a bad joke at a bad time can scarcely help being a bad thing.

THE LIFE OF PERCY DEARMER by his wife, Nan Dearmer (Cape. 10s. 6d.), is a book which will doubtless, with the passing of years, receive more attention than can possibly be accorded to it in these days of stress. It is a book which needs time, reflection and, above all, peace, in which to savour one of the most interesting and complex characters ever to be ordained in the Church of England.

So many scholars, preachers, philosophers, poets, artists, social reformers—and, indeed, odd fish—have appeared in orders in the Anglican communion that it is without surprise one can accept the fact that a questing spirit like Dearmer's should have been content to accept the circumspection which office in his church must have laid upon him.

Percy Dearmer might have risen higher in the Anglican hierarchy had his artistic temperament made him a less prickly subject for promotion. He might have gone farther had he been less uncompromising to the increasingly powerful Anglo-Catholic group. Yet his devotion to the arts made him a considerable figure in his generation; and it was characteristic of him that, although he was never himself a poet or a musician, his most serious labour was in the production of the English Hymnal and Songs of Praise.

This is the most difficult of all biographies to write—that of a husband by his wife; and Mrs. Dearmer, very naturally, is tempted to overload the detail. Nevertheless it is a human and very valuable document, and in it at least one reader is glad to find preserved some of the subject's more pregnant witticisms.

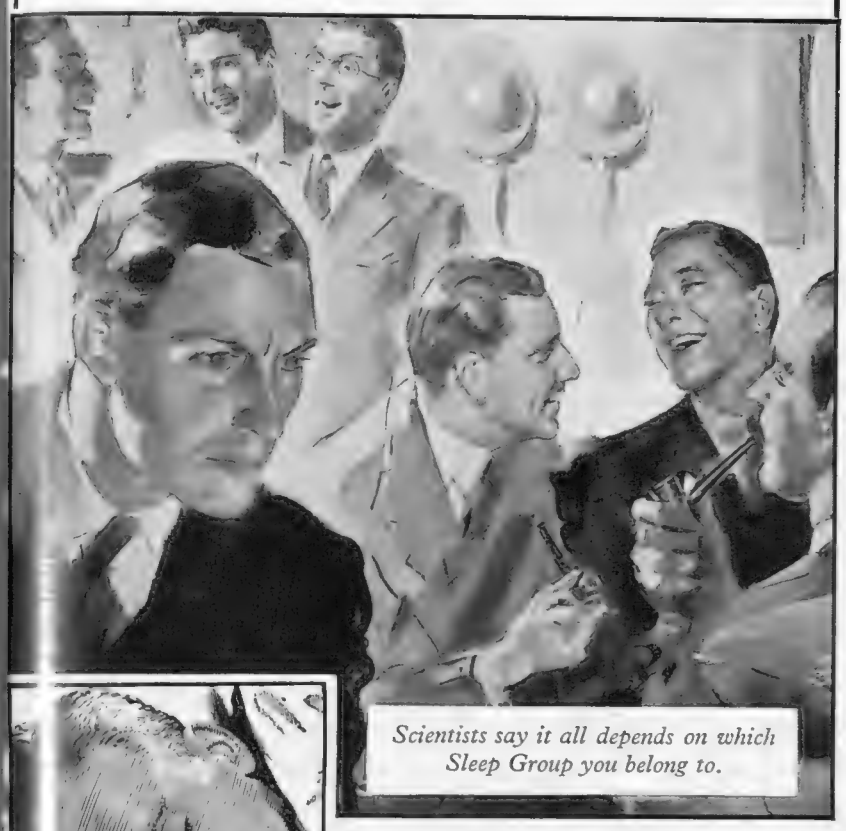
Finally, a book which in content is far removed from the war and yet at the same time touches a problem which has its root in one of the war's causes. This is Mr. R. W. Thompson's **VOICE FROM THE WILDERNESS** (Faber. 12s. 6d.). It is no book by a professional traveller, but that of a writer and journalist who takes his experienced pen on a voyage of travel and discovery to South America.

Mr. Thompson explains his progress towards this adventure by a brief autobiographical note. He came to maturity between wars, and is of that generation whose heritage was restlessness, and which, wheresoever it turned, could find no respite from past or impending catastrophe. Wherever he went he found people struggling to get free from overcrowding and misery, yet he knew of vast unpopulated areas holding for them the promise of a new life.

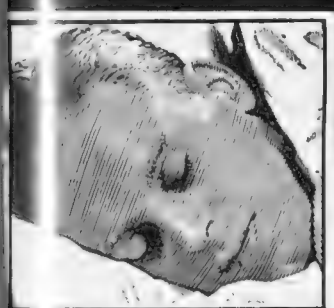
So to such a place in Paraguay he journeyed, to find out for himself what was happening to those colonies of Europeans—Czechs, Poles, Slovaks, Austrians, Germans, etc.—who had gone there to found colonies. In these people he found an interesting study in migration; a people who had uprooted themselves and, in the spirit of pioneers, have sought to wrest a new and more tolerable life from the virgin forests and watersheds of South America.

His book is full of sound observation, real adventure and a deep sympathy for those among whom he travelled. His approach is always intensely personal, and embellished with plentiful anecdote. It is quite an unusual and stimulating book.

WHAT MAKES SOME PEOPLE STAND UP TO THE STRAIN SO MUCH BETTER THAN OTHERS?



Scientists say it all depends on which Sleep Group you belong to.



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2nd SLEEP GROUP

2nd Group people seem to sleep well enough yet can't stand up to war worry and anxiety. They tire easily, feel "nervy," can't keep their mind on things. That's because excess acid waste products in the blood *activate* their brain and nerves at night. Hospital tests prove Horlicks corrects this.

3rd SLEEP GROUP

The people in this Group are least able to stand war strain. They sleep badly — can't get to sleep, lie awake or wake tired. Hospital tests prove that Horlicks overcomes this condition, ensures 1st Group Sleep.

There are 3 Sleep Groups

WHICH DO YOU BELONG TO?

IT'S a curious fact that some people suffer much more than others from war strain. Even though they sleep 8 or 9 hours every night they feel depressed, "nervy" and tired.

Scientists explain it by pointing out that a great many people belong to the wrong sleep group. There are 3 Sleep Groups altogether.

People in the 1st Sleep Group get perfect rest for their brain and nerves even from a short night's sleep. They find they can stand up splendidly to war worry and anxiety.

But the trouble with people in the 2nd and 3rd Sleep Groups is that their brain and nerves are kept active at night by the body's excess acid waste products, which accumulate in the blood.

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OF REGENT STREET

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A.R.P. IN THE HAYMARKET: Surface shelters are being put up in Regent Street, Waterloo Place and the Haymarket. Made of brick and concrete they will provide accommodation for 1,720 people. The traffic is now limited to two lines on each side

Importance of Motoring Knowledge

How It Could Reduce Military Training

By A. PERCY BRADLEY, M.I.A.E., A.M.I.Mech.E.

(Clerk of the Course, Brooklands)

THIS is no time for recriminations but we should be in a much stronger position to-day if every citizen above the age of seventeen or eighteen and who had not yet reached the period of senile decay could drive a motor car or motor cycle. As each age group is being called up to serve in the Army, far too large a proportion have never handled a motor car or motor-cycle and I imagine that an appreciable amount of their training time is spent in teaching them how to drive and the rudiments of motor mechanics. If that time could be saved we should have a larger army in a shorter space of time.

Civilians at the moment are only too anxious to assist the national war effort in any way that lies within their power, and it seems to me that in spite of the large proportion who have joined the Local Defence Volunteers or the other Home Defence services, there must be a large number of car owners who would be prepared to devote an hour or so every twenty-four hours to teaching young fellows who are about to be called up for service to drive a car. To derive the maximum benefit from such a scheme the necessary organisation should be started by the Government or, at any rate, the Royal Automobile Club or the Automobile Association. People who are privileged to be able to keep their cars in commission during these difficult times would, I am sure, be only too pleased to enter wholeheartedly into such a scheme. Like the Local Defence Volunteers the service that could be rendered by the individual can be carried out in the car owner's district.

The authorities have decided that people holding provisional licences need no longer have their cars decorated with learner plates and that the established system of road tests for beginners should be abandoned for the time being. This is a very sensible move, because every encouragement should be given to young and even old people to learn how to handle a motor car.

One of the few items of news that has come to hand recently which has cheered me up is that railings round squares and parks are being uprooted in the hunt for scrap iron. Few people in this country realise what a depressing atmosphere railings cause. I suppose the ambition of every Britisher is at some time or other to own a bit of land, and when obtained he immediately surrounds it with a fence or a hedge. Then he gets inside and looks upon it as his castle. If the boundary is a hedge there is no great disfigurement to the surrounding countryside but if railings have been put up, no matter how expensive or how artistic they may be, a blot on the landscape has been created. When people have seen the squares in our towns and cities deprived of their containing railings I am quite convinced that there will never be a demand to re-erect them.

I know that in certain places fences are necessary, in fact, in my own place of business the proprietors of Brooklands would probably be bankrupt within a year if there was no protective fence round the track, and I do not suggest that when normal times return any place where admission charges are made could possibly exist without an unclimable barrier around the property, but around parks, squares and gardens I think the amenities of the district will be enhanced immeasurably by the abolition of all boundaries which have height and which are artificial.

Some weeks ago I wrote a paragraph or two regarding hills which look quite formidable but which were climbable easily on top gear. I want to make it quite clear that the hills I had in mind did not lose their sting because there was a strong wind blowing the car towards the summit. But, as a matter of fact, I feel certain that many of my readers who are now driving small rather than large cars will agree with me that the performance of their vehicles is greatly affected by the direction of the wind. I must confess that until I took to a small car myself I did not appreciate that the velocity of wind had any noticeable effect on a car until high speeds were attained.

In fact, I rather considered the streamlining of cars which were not capable of exceeding 60 m.p.h. as being an obvious waste of effort, but I now find on a particular gradient on my way home from my office that if the wind is behind me I can maintain a speedometer speed of 35 m.p.h., whereas in still air I can just hang on to top with the needle at the 30 m.p.h. mark. Should the wind be against me at this particular spot then a change down to third gear is necessary. It appears, therefore, fairly conclusive that stream-lining even on small, comparatively slow cars is definitely worth while.

In my younger days I used to ride a push cycle, not because I was terribly enthusiastic about it but because I wished to get from place to place and had no other means of transport. I remember how difficult the learning process appeared to be and how my instructor almost gave me up as a hopeless pupil. Another thing I definitely remember being taught was to place the ball of my foot on the pedal and not the instep. Push cycling is not a subject with which I deal usually in my motor notes, but we drivers pass so many on the road that I thought I would mention this small and probably unimportant detail.

THE SHAFTESBURY HOMES AND "ARETHUSA" TRAINING SHIP

One kind supporter of this work who has been interested for the last thirty years, and lives in Canada, has been making a welcome gift to the boys in the Training Ship of 5 lb. of butter each week since April last. This is a most acceptable gift when it is so hard to secure funds, and the boys must be fed as well as clothed and trained. To those who would like to help but cannot afford to send money, but could send gifts of kind, such gifts would be a great asset. All gifts will be gratefully acknowledged from the Headquarters of the Society, 164, Shaftesbury Avenue, London, W.C.2.

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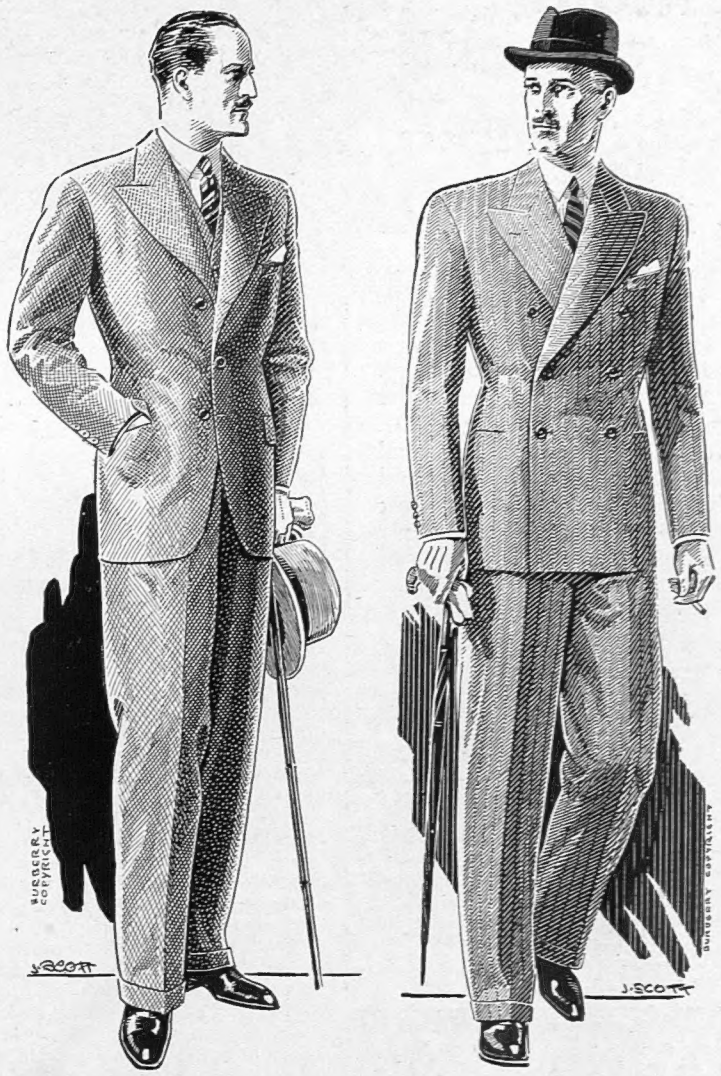

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In Quest of Good Hotels

By ASHLEY COURTENAY

The Cuckoo in a Town—Real Scottish Hospitality

I ONLY heard of one complaint when I visited Thirlestaine Hall Hotel at Cheltenham last week—the cuckoo had been so bold as to announce its presence at 4.30 a.m., hard by a visitor's bedroom. Whilst one has learnt from childhood that this bold, bad bird annexes with unprincipled effrontery some other hard-working neutral's nest, it was the first instance I had heard of a cuckoo standing accused of disturbing an hotel visitor's rest . . . and in a town!

In this particular instance I think the cuckoo should be exonerated from blame. Cheltenham is a garden town, and from the windows of Thirlestaine Hall (which lies behind Cheltenham College) one can be excused for supposing that one is in the heart of the country. I expect there have been other minor complaints because Thirlestaine Hall has only been an hotel for some six months, and during the running-in process adjustments are inevitable, yet I am satisfied from first-hand knowledge that Thirlestaine Hall is going to take its place—if it has not already done so—as *the* hotel in Cheltenham for all who seek good taste in every sense.

Unlike so many of our stately homes which have been adapted for hotel purposes, Thirlestaine Hall has been blended. There is nothing makeshift—there are no misfits—there is a rare sense of good taste in furniture and interior decoration. The feminine mind will clearly discern that only a woman's mind could have planned and perfected this picture of hotel completeness.

I first met Mrs. Lewis Hall when Thirlestaine was in the process of conversion. I manœuvred round scaffold poles, picked my way amidst a confusion of planks, girders, paint pots, and rubble, whilst I was shown where the kitchens were to be, the conversion of the upper floors, and so on. I remember I asked Mrs. Lewis Hall at the time who was going to run this fifty bedroom hotel with fifty bathrooms, and her reply was: "We shall run it ourselves as this is the only way we can be sure of being able to give expression to our ideas of what a first-class hotel can offer."

With the menfolk away on service, Mrs. Lewis Hall and her daughter are continually on the spot—and so detect the spots! Everywhere there is evidence of good taste. Note the pleasing effect as one enters, the Chinese washed carpets, the wrought iron electric equipments and the spacious homeliness of the drawing-room. The dining-room reflects good taste in its china, silver and napery. The restful colour treatment of the walls and doors, the chairs made to sit in as well as on! The cocktail lounge, too, has been designed with regard for individuality; here one can sit literally on top of the world (you will get the meaning of this remark when you go there!). The ballroom with its parquet floor is bedecked with period furniture—and everywhere there are flowers, not just stuck into vases, but arranged with all the pride of a professional florist.

After going around the downstairs and the below-stairs, one could have guessed what one was going to find upstairs. Each bedroom with its individual colour scheme has the modern conception of a private bathroom. Each bedroom has central heating, post office telephone at the bedside and the final finishing touch which I have always been looking for—a meter for the electric fire so that one does not have to go on all fours to insert a coin.

In point of fact, an electric fire at Thirlestaine is totally unnecessary, for the central heating can thaw the coldest day. But on fine days we will turn our thoughts to the garden; utilitarian and ornamental. Cool corners, and cucumber frames; sunny nooks and hot-houses. Here, one feels as one strolls around, is a fair specimen indeed of "This England," which never did, nor never shall lie at the proud foot of a conqueror.

And now let us turn our thoughts northwards. Although jaunts abroad will be out of the question this year, it does not follow that everyone intends to spend his or her summer without some kind of "break," and many an ardent devotee of the Italian Lakes or the South of France will for once have an opportunity of studying in greater detail some of the beauties of this island instead. And of her many varying types of beauty, none to my mind compares with the simple grandeurs of Scotland. Not only is her mountainous scenery hard to beat, but she offers you such a variety of beauty within easy reach. With Oban as your centre, for instance, you can visit the Western Isles, Tobermory, Ben More, Mull, where the Castle of Duart, should it be evening time, will stand up black against the sunset.

Duart was visited nearly eighty years ago by a boy, cruising round the islands with his father; standing among its tumbled ruins he vowed he would one day rebuild it and renew his family fortunes—and sixty years later he did it when he was Chief of Clan MacLean.

I do not propose that in visiting Oban one should stop in the town, but I do suggest that you make the Great Western Hotel your headquarters. Large, and in some respects old-fashioned, it is extremely comfortable, and has at least one modern innovation, which proves popular—an up-to-date cocktail bar.

If you prefer something a little smaller, the Alexandra Hotel is the one for you to try. Standing in its own grounds on the Esplanade, it overlooks the bay, and has the advantage of a bathing beach immediately opposite. Nothing does a man so much good as to relax over his favourite hobby, and it is because so many people enjoy golf for their leisure hours that Scotland has such a "pull" with a large proportion of Englishmen.

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Mr. Ashley Courtenay is always pleased to advise "Sphere" readers of hotels, both large and small, known to him personally. Letters, accompanied by a 2½d. stamp for reply, should be addressed to him, c/o the Editor, THE SPHERE, *32-34, St. Bride Street, London, E.C.4. Personal and telephone inquiries, however, cannot be accepted.*

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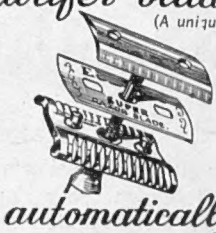

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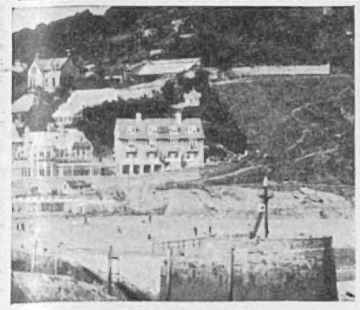

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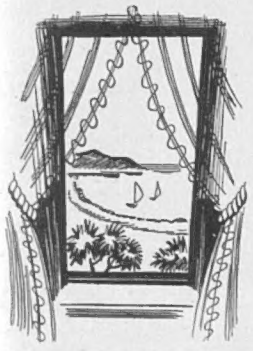

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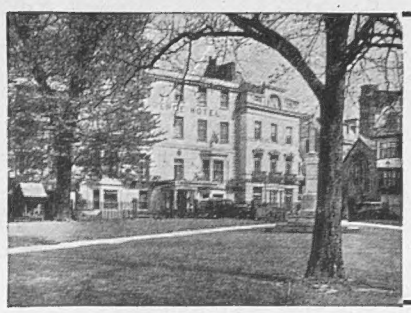

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Aldeburgh.—Wentworth Hotel. Tel. 312 & 313.
Bath.—Lansdown Grove Hotel. Tel. 3235/36.
Bexhill-on-Sea.—Hotel Riposo. Tel. 472.
Bishopsteignton (S. Devon).—Huntly Hotel.
Blackpool.—The Headlands. A.A. & R.A.C.
Bognor Regis.—Royal Norfolk Hotel.
Boscastle.—Welltown Manor Guest Hse. Tel. 17.
Bournemouth.—Bourne Hall Hotel. Tel. 5.
Bournemouth.—Canford Cliffs Hotel.
Bournemouth.—Tollard Royal.
Brighton.—The King's Hotel.
Brighton (Rottingdean).—Tudor Close Hotel.
Bushey.—Bushey Hall Hotel.
Cerne Abbas.—The Old House. Tel. 72.
Chipping Campden.—Cotswold Hse. Htl. Tel. 330
Crowborough (Sussex).—The Crest Hotel.
Dulverton.—Carnarvon Arms.
Dulverton (Som.).—Woodcote Hotel. Tel. 129.
Exeter.—Royal Clarence Hotel.
Falmouth.—Greenbank Hotel.
Falmouth.—Hydro Hotel.
Folkestone.—Princes Hotel. Telephone 2666.
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Paignton.—Ravenswood Hotel. Cliff Road.
Paignton.—Redcliffe Hotel.
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Scarborough.—The Grand. 'Phone: 1053.
Shaftesbury (Dorset).—Coombe House Hotel.
Sidmouth.—Cedar Shade Hotel.
Sidmouth.—The Torbay Hotel.
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Torquay.—Lincombe Hall. Tel. 2302.
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ENGLAND—*continued*

Twyford (Berks.).—Grove Hall Hotel. Tel. 106
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ENGLISH LAKES

Keswick.—Borrowdale Hotel. Borrowdale 24.
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SCOTLAND

Gairloch (Ross-shire).—Gairloch Hotel.
Glendevon (Perthshire).—Castle Hotel.
Glen o'Dee (Banchory).—Royal Deeside Hotel.
Grantown-on-Spey.—Grant Arms Hotel.
North Berwick.—Marine Hotel.
Oban.—Alexandra Hotel.
Oban.—Great Western Hotel.
Onich (Inverness-shire).—Creaghdhu Hotel.
Pitlochry.—Pitlochry Hydro.
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